TM 55-1520-238-23-6

DESCRIPTION AND OPERATION - FUEL SYSTEM

MAINTENANCE - FUEL SYSTEM

MAINTENANCE - FUEL CELLS

TECHNICAL MANUAL

AVIATION UNIT AND INTERMEDIATE MAINTENANCE MANUAL

FOR

ARMY
AH-64A HELICOPTER

CHAPTER 10
FUEL SYSTEM

"Approved for public release; distribution is unlimited."

This manual together with TM 55-1520-238-23-1, 7 June 1988, TM 55-1520-238-23-2, 7 June 1988, TM 55-1520-238-23-3, 7 June 1988, TM 55-1520-238-23-4, 7 June 1988, TM 55-1520-238-23-5, 7 June 1988, TM 55-1520-238-23-7, 7 June 1988, TM 55-1520-238-23-8, 7 June 1988, TM 55-1520-238-23-9, 7 June 1988, TM 55-1520-238-23-10, 7 June 1988, supersedes TM 55-1520-238-23-1, 4 March 1985, TM 55-1520-238-23-2, 4 March 1985, TM 55-1520-238-23-3, 4 March 1985, TM 55-1520-238-23-4, 4 March 1985, TM 55-1520-238-23-5, 4 March 1985, TM 55-1520-238-23-6, 4 March 1985, TM 55-1520-238-23-7, 4 March 1985, TM 55-1520-238-23-8, 4 March 1985.

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7 JUNE 1988

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CHAPTER 10

FUEL SYSTEM

CHAPTER OVERVIEW

This chapter contains description and operation information and maintenance instructions for the fuel system.

Fuel system troubleshooting information is in TM 55-1520-238-T.

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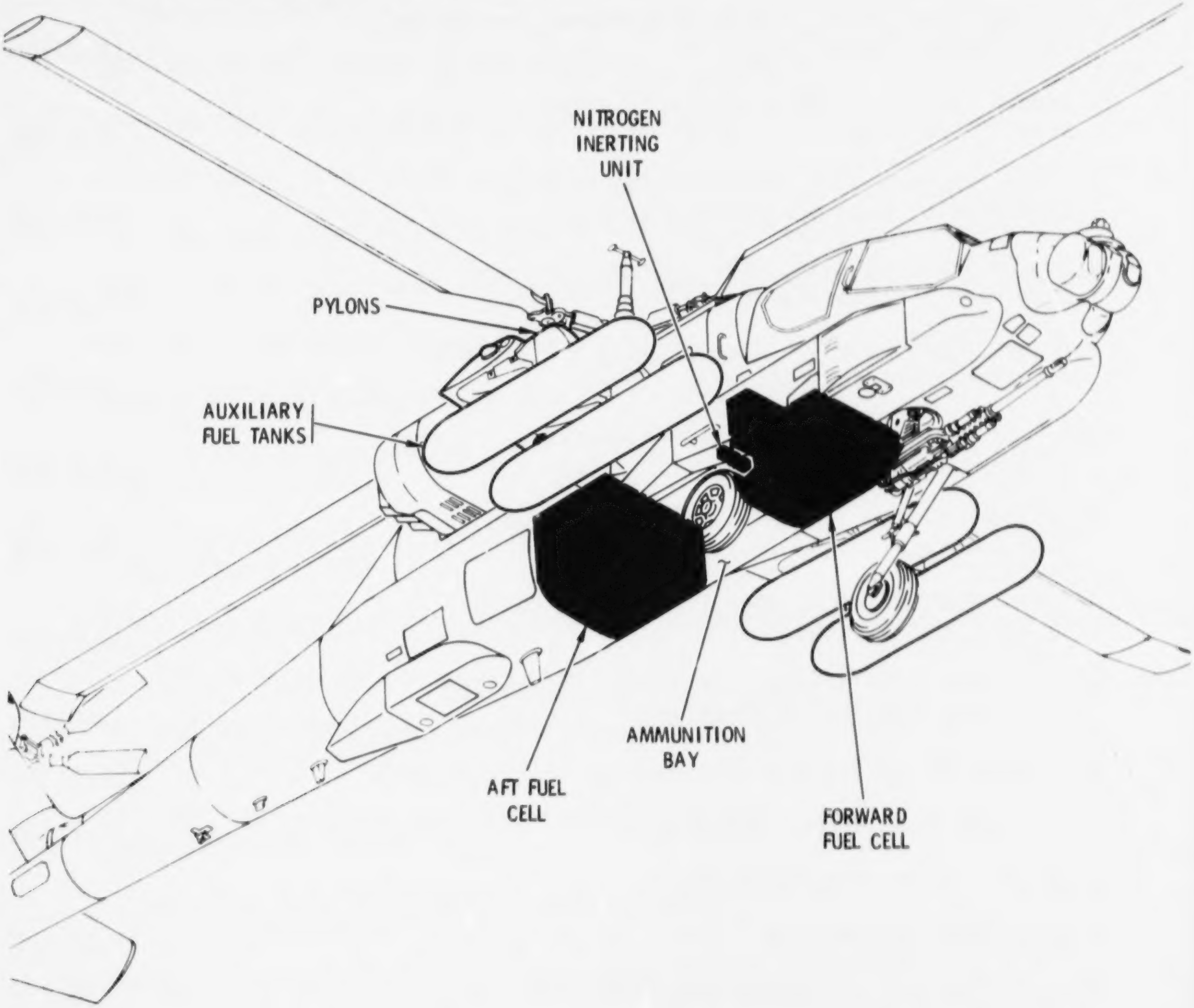
Section I. FUEL SYSTEM DESCRIPTION AND OPERATION

10-1-1. FUEL SYSTEM DESCRIPTION AND OPERATION 10-1-1


NITROGEN INERTING UNIT
PYLONS
AUXILIARY FUEL TANKS
AMMUNITION BAY
AFT FUEL CELL
FORWARD FUEL CELL

MM04-0604-1B

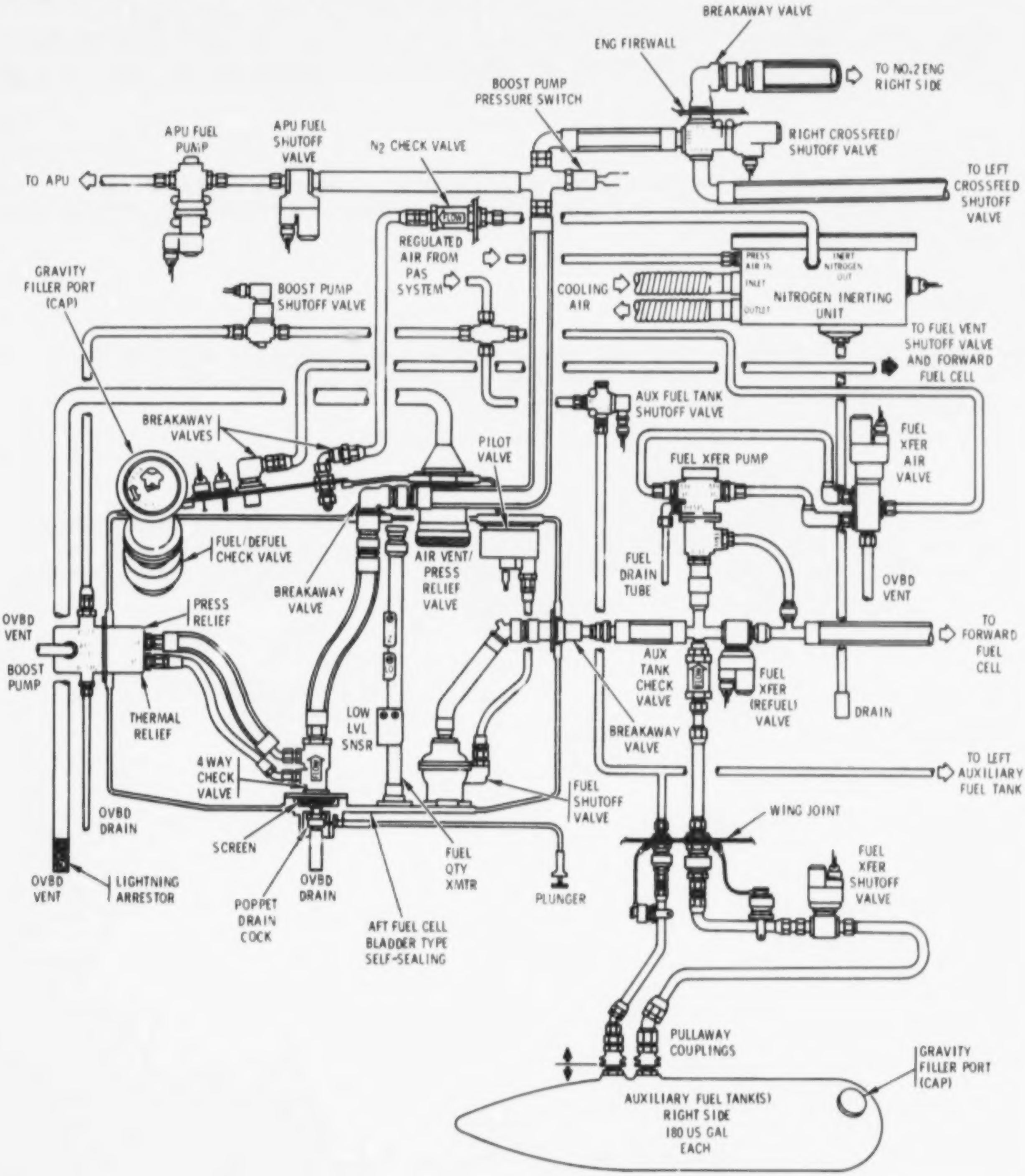
10-1-1. FUEL SYSTEM DESCRIPTION AND OPERATION (cont) 10-1-1

A. The fuel system consists of the forward and aft internal fuel cells with associated components. Fuel is distributed by components mounted externally to the fuel cells at various locations on the fuselage structure.

B. The fuel cells are in the bottom of the helicopter, forward and aft of the ammunition bay. They store and supply fuel to operate the helicopter engines and auxiliary power unit (APU).

C. Auxiliary fuel tanks are used for long missions. The tanks are attached to pylons on the bottom of the helicopter wing. Fuel in auxiliary tanks is transferred to the internal fuel cells.

D. The nitrogen inerting unit is in the ammunition bay. The unit provides nitrogen to the forward and aft fuel cells. The nitrogen replaces fuel and air in the fuel cells. Replacing air with nitrogen prevents fuel cell fires and explosions.


BREAKAWAY VALVE
ENG FIREWALL
TO NO.2 ENG RIGHT SIDE
BOOST PUMP PRESSURE SWITCH
RIGHT CROSSFEED/ SHUTOFF VALVE
APU FUEL PUMP
APU FUEL SHUTOFF VALVE
N2 CHECK VALVE
TO APU
TO LEFT CROSSFEED SHUTOFF VALVE
FLOW
REGULATED AIR FROM PAS SYSTEM
GRAVITY FILLER PORT (CAP)
BOOST PUMP SHUTOFF VALVE
COOLING AIR
PRESS AIR IN
INERT NITROGEN OUT
INLET
OUTLET
NITROGEN INERTING UNIT
TO FUEL VENT SHUTOFF VALVE AND FORWARD FUEL CELL
AUX FUEL TANK SHUTOFF VALVE
BREAKAWAY VALVES
PILOT VALVE
FUEL XFER PUMP
FUEL XFER AIR VALVE
FUEL/DEFUEL CHECK VALVE
AIR VENT/ PRESS RELIEF VALVE
FUEL DRAIN TUBE
OVBD VENT
BREAKAWAY VALVE
PRESS RELIEF
OVBD VENT
TO FORWARD FUEL CELL
BOOST PUMP
AUX TANK CHECK VALVE
FUEL XFER (REFUEL) VALVE
DRAIN
THERMAL RELIEF
LOW LVL SNSR
BREAKAWAY VALVE
4 WAY CHECK VALVE
TO LEFT AUXILIARY FUEL TANK
FUEL SHUTOFF VALVE
OVBD DRAIN
WING JOINT
SCREEN
FUEL QTY XMTR
FUEL XFER SHUTOFF VALVE
OVBD VENT
LIGHTNING ARRESTOR
OVBD DRAIN
PLUNGER
POPPET DRAIN COCK
AFT FUEL CELL BLADDER TYPE SELF-SEALING
PULLAWAY COUPLINGS
GRAVITY FILLER PORT (CAP)
AUXILIARY FUEL TANK(S) RIGHT SIDE 180 US GAL EACH

MM04-0604-2C

E. Aft fuel cell supplies fuel to engine No. 2 and the APU. A crossfeed shutoff valve for each engine allows either cell to supply fuel to both engines. These valves can also shut off fuel flow to their respective engines.

F. A fuel boost pump provides fuel pressure to the engine-driven fuel pumps during engine starts. It also provides positive fuel pressure at altitudes over 10,000 feet. The fuel boost pump is air-driven by the pressurized air system (PAS).

G. The fuel boost pump shutoff valve controls air flow from the PAS to the boost pump. The valve is controlled by BOOST switches on the FUEL control panels in the crew stations.

H. The boost pump pressure switch provides a signal to light the BOOST PUMP ON indicator on the pilot's CAUTION/WARNING panel.

I. A four-way check valve allows fuel to bypass the boost pump when the pump is not being used.

J. The fuel transfer pump transfers fuel from cell to cell to maintain helicopter balance. The pump is driven by the PAS.

K. The fuel transfer air valve directs air from the PAS to the fuel transfer pump. The valve is controlled by TRANS switches on the FUEL control panels in the crew stations. When fuel transfer is selected by either the pilot or the copilot, an advisory light on each crew station instrument panel lights.

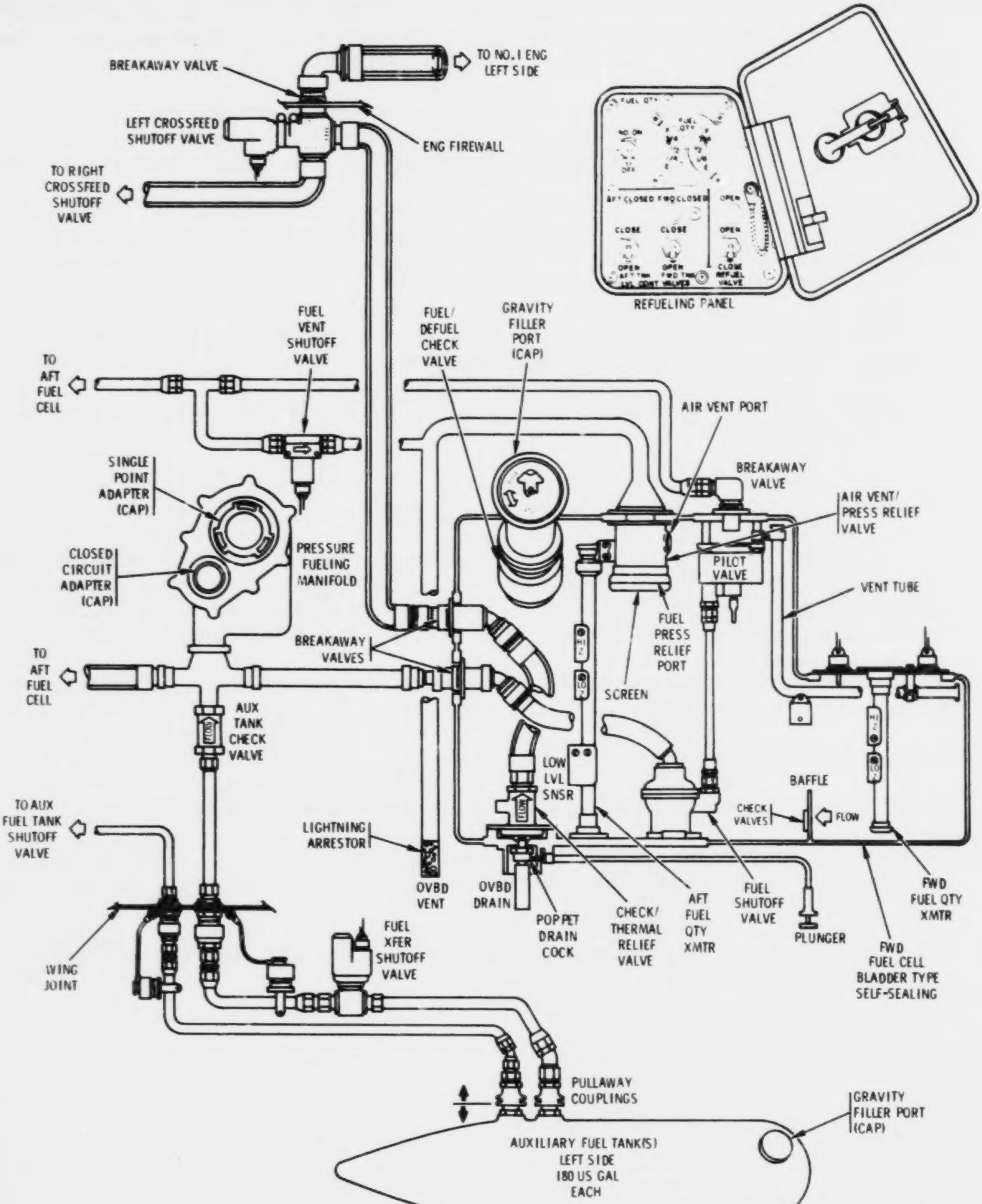
L. The transfer/refuel valve closes to allow fuel to bypass the fuel transfer pump during pressure refueling of the aft fuel cell.

M. The APU boost pump supplies fuel to the APU.

N. An APU shutoff valve shuts off fuel flow to the APU boost pump.

O. The auxiliary fuel tank shutoff valve shuts off regulated air from the PAS to the auxiliary fuel tanks. The air is used to transfer fuel from the auxiliary tanks to the internal fuel cells.

P. Two auxiliary fuel check valves prevent the flow of fuel into the auxiliary fuel tanks during pressure refueling.


BREAKAWAY VALVE
TO NO. 1 ENG LEFT SIDE
LEFT CROSSFEED SHUTOFF VALVE
ENG FIREWALL
TO RIGHT CROSSFEED SHUTOFF VALVE
FUEL QTY
NO ON
OFF
FUEL QTY
AFT CLOSED
FWD CLOSED
OPEN
CLOSE
CLOSE
OPEN
OPEN AFT TNK
OPEN FWD TNK
LVL CONT VALVES
CLOSE REFUEL VALVE
REFUELING PANEL
FUEL VENT SHUTOFF VALVE
FUEL/ DEFUEL CHECK VALVE
GRAVITY FILLER PORT (CAP)
TO AFT FUEL CELL
AIR VENT PORT
BREAKAWAY VALVE
AIR VENT/ PRESS RELIEF VALVE
SINGLE POINT ADAPTER (CAP)
PILOT VALVE
CLOSED CIRCUIT ADAPTER (CAP)
PRESSURE FUELING MANIFOLD
VENT TUBE
FUEL PRESS RELIEF PORT
BREAKAWAY VALVES
HI Z
LO Z
TO AFT FUEL CELL
SCREEN
AUX TANK CHECK VALVE
FLOW
LOW LVL SNSR
BAFFLE
CHECK VALVES
FLOW
TO AUX FUEL TANK SHUTOFF VALVE
LIGHTNING ARRESTOR
FLOW
OVBD VENT
OVBD DRAIN
POPPET DRAIN COCK
CHECK/ THERMAL RELIEF VALVE
AFT FUEL QTY XMTR
FUEL SHUTOFF VALVE
PLUNGER
FWD FUEL QTY XMTR
FWD FUEL CELL BLADDER TYPE SELF-SEALING
FUEL XFER SHUTOFF VALVE
WING JOINT
PULLAWAY COUPLINGS
GRAVITY FILLER PORT (CAP)
AUXILIARY FUEL TANK(S) LEFT SIDE 180 US GAL EACH

MM04-0604-3C

10-1-1. FUEL SYSTEM DESCRIPTION AND OPERATION (cont) 10-1-1

Q. A gravity filler port in each fuel cell allows manual refueling of the fuel cells. The refuel valve switch will open the vent valve during gravity refueling.

R. A refueling control panel controls pressure refueling or defueling. The control panel provides visual indications of fuel level and fuel transfer/ refuel valve position.

S. The pressure fueling manifold has a single-point adapter and a closed circuit adapter. These adapters allow pressure fueling nozzles to fuel or defuel the helicopter. Maximum fueling pressure is 50 psi (SPA) and 15 psi (CCR) respectively.

T. Fuel shutoff and pilot valves in each fuel cell provide automatic fuel shutoff during pressure refueling. These valves also provide automatic shutoff during fuel transfer from auxiliary fuel tanks and internal transfer to the fuel cells.

U. Air vent and fuel pressure relief valves are in each fuel cell. The vent closes when the helicopter is positioned greater than 25 degrees from the horizon. If helicopter rollover occurs, the vent system will close to prevent fuel spillage through the vent system. A lightning arrestor is attached to the bottom of each air vent tube to eliminate fire hazard from lightning strikes.

V. A thermal relief valve is in the forward fuel cell. The thermal relief valve relieves pressure caused by heat expansion of fuel in engine fuel supply lines.

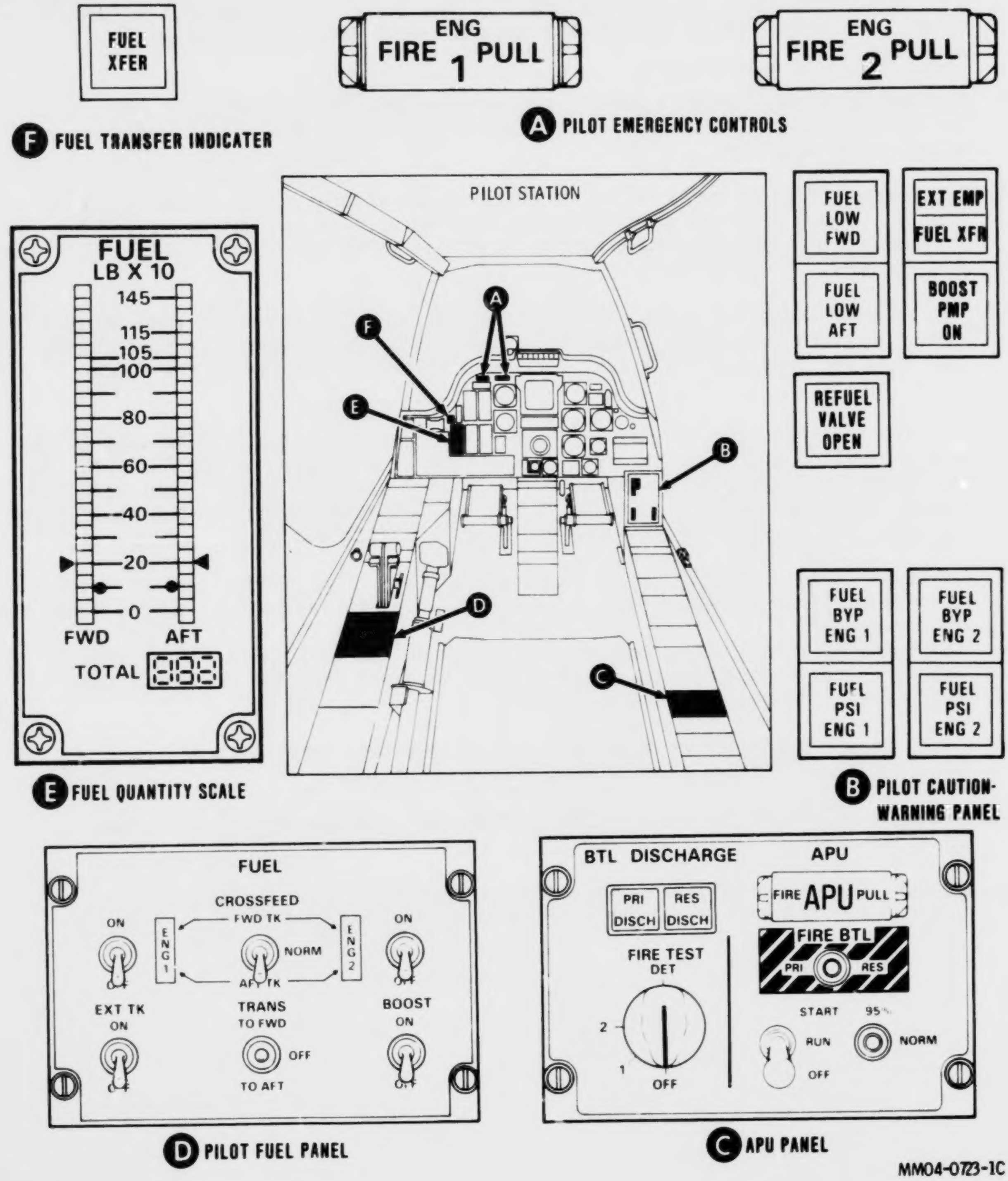
W. Fuel quantity transmitters measure fuel level in the fuel cells. Low level sensors on the transmitters provide signals to light FUEL LOW caution lights on pilot and CPG caution/warning panels.

X. A fuel poppet draincock in each fuel cell allows fuel samples to be taken. They also drain trapped fuel after pressure defueling.

Y. Breakaway valves in the fuel system prevent fuel leakage and minimize fuel spillage.

Z. A check valve and baffle are in the forward fuel cell only. They allow constant fuel flow to the engines during nose-down attitudes.

10-1-2. FUEL CONTROLS AND INDICATORS DESCRIPTION AND OPERATION 10-1-2


FUEL
XFER
F FUEL TRANSFER INDICATER
ENG FIRE 1 PULL
ENG FIRE 2 PULL
A PILOT EMERGENCY CONTROLS
PILOT STATION
A
F
E
B
D
C
FUEL
LB X 10
145
115
105
100
80
60
40
20
0
FWD
AFT
TOTAL
E FUEL QUANTITY SCALE
FUEL LOW FWD
EXT EMP
FUEL XFR
FUEL LOW AFT
BOOST PMP ON
REFUEL VALVE OPEN
FUEL BYP ENG 1
FUEL BYP ENG 2
FUEL PSI ENG 1
FUEL PSI ENG 2
B PILOT CAUTION-WARNING PANEL
FUEL
CROSSFEED
FWD TK
NORM
AFT TK
ON
ENG 1
ENG 2
OFF
EXT TK
ON
TRANS
TO FWD
OFF
TO AFT
BOOST
ON
D PILOT FUEL PANEL
BTL DISCHARGE
PRI DISCH
RES DISCH
APU
FIRE APU PULL
FIRE BTL
PRI
RES
FIRE TEST
DET
2
1
OFF
START
RUN
OFF
95%
NORM
C APU PANEL
MM04-0723-1C

10-1-2. FUEL CONTROLS AND INDICATORS DESCRIPTION AND OPERATION (cont) 10-1-2

Fuel controls and indicators in the pilot station are:

A. PILOT EMERGENCY CONTROLS

ENG FIRE PULL 1 handle	When pulled, closes crossfeed shutoff valve of engine No. 1.
ENG FIRE PULL 2 handle	When pulled, closes crossfeed shutoff valve of engine No. 2.

B. PILOT CAUTION/WARNING PANEL

FUEL LOW FWD indicator	Provides a visual indication of the fuel level data received from the low level sensor in the forward fuel cell.
FUEL LOW AFT indicator	Provides a visual indication of the fuel level data received from the low level sensor in the aft fuel cell.
FUEL BYP ENG 1 indicator	Provides a visual indication that the engine No. 1 fuel filter is clogged and bypass has begun.
FUEL PSI ENG 1 indicator	Provides a visual indication that engine No. 1 fuel pressure is less than 9 psi.
FUEL BYP ENG 2 indicator	Provides a visual indication that engine No. 2 fuel filter is clogged and bypass has begun.
FUEL PSI ENG 2 indicator	Provides a visual indication that engine No. 2 fuel pressure is less than 9 psi.
EXT EMP indicator	Provides a visual indication that the auxiliary fuel tanks are empty.
FUEL XFR indicator	Provides a visual indication that the fuel transfer pump is on.
BOOST PUMP ON indicator	Provides a visual indication that the fuel boost pump is on.

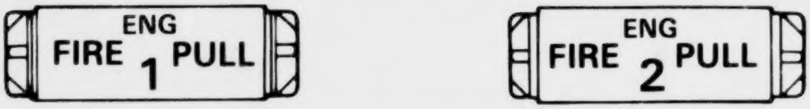
C. APU PANEL

APU FIRE PULL handle	When pulled, closes APU fuel shutoff valve.
START/RUN/OFF switch	When set to START or RUN, the APU fuel shutoff valve opens and the APU boost pump turns on.

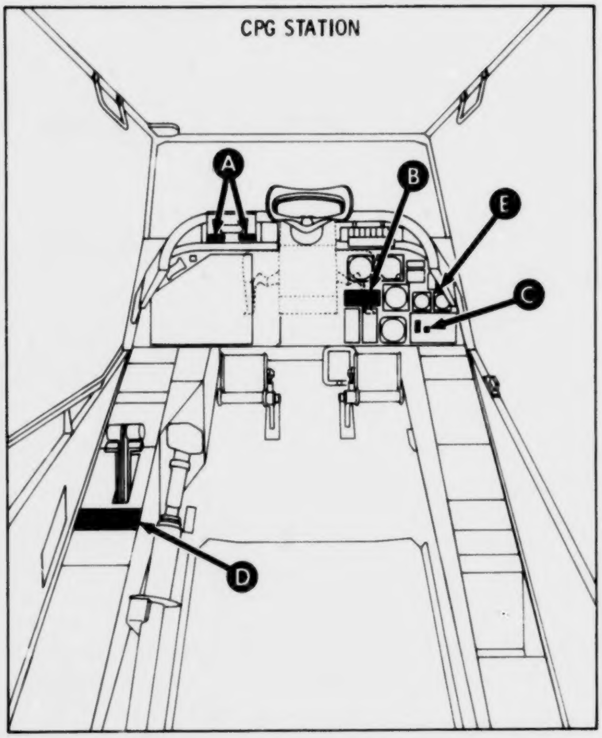
10-1-2. FUEL CONTROLS AND INDICATORS DESCRIPTION AND OPERATION (cont) 10-1-2

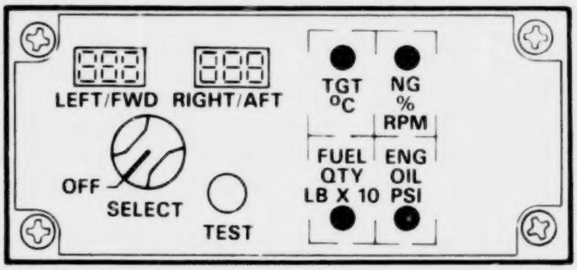
D. PILOT FUEL PANEL	
ENG ON/OFF switch and TK SEL switch	Control crossfeed shutoff valves.
BOOST ON/OFF switch	Controls fuel boost pump shutoff valve.
TRANS switch	Controls fuel transfer control valve.
EXT TK switch	Controls external fuel tank air shutoff valve and external fuel tank fuel shutoff valves.
E. FUEL LB X 10 INDICATOR	Provides visual readouts of fuel quantity data received from the fuel quantity transmitters in the fuel cells.
F. FUEL XFER INDICATOR	Provides a visual indication when fuel transfer has been selected by either crew member.

10-1-2. FUEL CONTROLS AND INDICATORS DESCRIPTION AND OPERATION (cont) 10-1-2

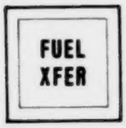

ENG
FIRE 1 PULL
ENG
FIRE 2 PULL

A CPG EMERGENCY CONTROLS

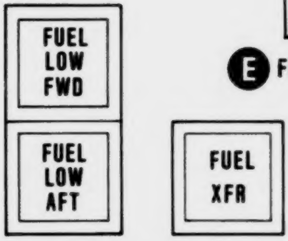

CPG STATION
A
B
E
C
D


LEFT/FWD
RIGHT/AFT
TGT °C
NG % RPM
FUEL QTY LB X 10
ENG OIL PSI
OFF
SELECT
TEST

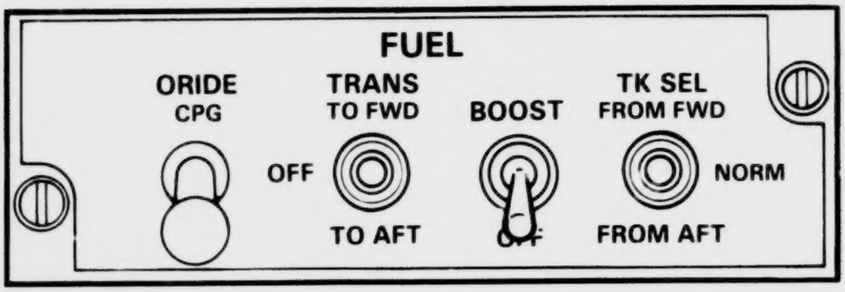
B SELECTABLE DIGITAL DISPLAY PANEL



E FUEL TRANSFER INDICATOR


FUEL LOW FWD
FUEL LOW AFT
FUEL XFR

C CPG CAUTION-WARNING PANEL


FUEL
ORIDE
CPG
TRANS
TO FWD
OFF
TO AFT
BOOST
OFF
TK SEL
FROM FWD
NORM
FROM AFT

D CPG FUEL PANEL

MM04-0723-2C

10-1-2. FUEL CONTROLS AND INDICATORS DESCRIPTION AND OPERATION (cont) 10-1-2

Fuel controls and indicators in the copilot/gunner (CPG) station are:

A. CPG EMERGENCY CONTROLS

ENG FIRE PULL 1 handle	When pulled, closes crossfeed shutoff valve of engine No. 1.
ENG FIRE PULL 2 handle	When pulled, closes crossfeed shutoff valve of engine No. 2.

B. SELECTABLE DIGITAL DISPLAY PANEL

FUEL QTY LBx10 indicator	Lights when fuel quantity function is being tested on the selectable digital data display.
LEFT/FWD RIGHT/AFT indicators	Provide digital displays of fuel quantity data received from the fuel quantity transmitters in the fuel cells.

C. CPG CAUTION/WARNING PANEL

FUEL LOW FWD indicator	Provides a visual indication of the fuel level data received from the low level sensor in the forward fuel cell.
FUEL LOW AFT indicator	Provides a visual indication of the fuel level data received from the low level sensor in the aft fuel cell.
FUEL XFER indicator	Provides a visual indication that the fuel transfer pump is on.

D. CPG FUEL PANEL

FUEL TRANS switch	Controls fuel transfer air valve.
FUEL BOOST switch	Controls fuel boost pump shutoff valve.
FUEL TK SEL switch	Controls crossfeed shutoff valves.

E. FUEL XFER indicator	Provides a visual indication when fuel transfer has been selected by either crew member.

Section II. FUEL SYSTEM MAINTENANCE

10-2-1. FUEL SYSTEM INSPECTION 10-2-1

References:

TM 43-0105
TM 55-1500-345-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed

1. **Check fuel cells for tears, cuts, chafing, cracks, damaged mounting pads, or evidence of leakage.**

2. **Check valves, unions, and components for looseness, rounded wrench flats, nicks, gouges, scratches, distortion, and corrosion.** Check for loose components.

   a. Negligible

   Minor scratches (without burrs or raised materials) that do not penetrate through protective finish are acceptable.

   b. Repairable

   Nicks, gouges, corrosion pits (TM 43-0105), or minor surface damage, not exceeding 0.040-inch or 10 percent of material thickness (whichever is less after rework), are permissible.

   c. Not Repairable

   Damage exceeding repairable limits, or damage to a seal or fillet surface necessitates replacement.

   d. Touchup removed protective finish as required (TM 55-1500-345-23).

3. **Check valves, unions, and other components for cracks and damaged threads.** None allowed.

4. **Check electrical connections and switches for loose, cut, worn, chafed, and frayed wires.** None allowed. Check security of all connections.

5. **Check electrical connectors for cracks and damaged threads.** Cracks allowed. Thread damage not to exceed 50 percent of one thread.

6. **Check all electrical connectors for distorted, burned, corroded or bent contacts.** None allowed.

7. **Check all tubes for deformation, worn chafing strips, dents, cracks, breaks, and leaks.** Check security of all connections.

   a. Cracked or deformed tubing, nuts, and unions require tube replacement.

   b. Dents, of more than 20 percent of the tube diameter, require tube replacement.

   c. Nicks or chafing, of more than 10 percent of tube wall thickness, require tube replacement.

   d. Wear exceeding **0.020 INCH** requires chafing strip replacement.

8. **Check all tube and hose fittings for cracks.** None allowed.

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9. **Check all hoses for fraying, tears, cuts, and evidence of seeping.** Check for loose mounting hardware. Replace damaged or worn hoses.

10. **Check for loose, broken, cracked, and distorted clamps.** Replace damaged clamps.

11. **Check all helicoil inserts for breaks, cracks, chafing, corrosion and security.**

    a. No breaks or cracks allowed. Chafing in hook area shall not exceed 0.010 in depth.

    b. Coils that have any corrosion pits shall be replaced.

    c. Coils shall not be sprung, coils must be tight against each other.

12. **Check all ratchet sleeve adapters and fittings for broken or missing teeth.** None allowed.

13. **Check for damage in areas surrounding the fuel system and its parts.**

14. **Check daily for 5 days following maintenance which could result in any fuel spill in or above the fuel cell cavity.**

    a. Visually examine helicopter exterior surfaces for signs of fuel. This area is to include ground directly under forward and aft fuel cells and forward/aft access doors (B-170 and B-250).

    b. Remove ammunition bay access panel (B200) (para 2-2-2).

    c. Check for presence of fuel in forward/aft fuel cell and ammunition bay areas. Strong odor of fuel vapor indicates fuel and requires corrective action.

    d. Troubleshoot (TM 55-1520-238T-3) if system leak is found.

    e. Reinstall ammunition bay access panel B200 (para 2-2-2) if inspection is satisfactory.

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10-2-2. FUEL SYSTEM SAFETY PRECAUTIONS 10-2-2

Tools:

Nomenclature	Part Number (NSN)
Goggles	4240-00-052-3776
Gloves	8415-00-266-8677
Apron	8415-00-082-6108
Respirator	4240-00-022-2524
Extinguisher, Fire Carbon Dioxide	4210-00-270-4512
Toxic Meter	6665-00-182-7719

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet engine fuel comes in contact with eyes or skin, flush with water and seek medical aid.

When working on the helicopter, clean up any spilled fuel with cotton rags. Spilled fuel could ignite and cause personnel injury or damage to equipment.

For protection from fuel spills keep your shirt sleeves rolled down and buttoned. Keep your shirt-tail tucked in. Do not carry loose items in your pockets. Loose items could fall out of your pockets and cause sparks. Do not wear jewelry. Jewelry could strike against metal surfaces and cause sparks.

To prevent injury to personnel or damage to equipment, observe normal fire precautions while working on helicopter fuel system.

When using fire extinguisher in a confined space, wear a respirator. If fire extinguisher is discharged in a confined space, ventilate space as soon as possible. Serious personnel injury could occur if vapors are inhaled. If injury occurs, seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

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1. **Have one person, with fire extinguisher, standby as a safety watch.**

2. **Wear protective clothing.**

    a. Wear goggles to protect your eyes from fuel spills.

    b. Wear gloves to protect your hands while working on fuel system. If your gloves become saturated with fuel, replace them. Gloves do not offer protection against burns.

    c. Wear apron for protection from fuel spills.

    d. Wear standard rubber-soled, leather combat boots for protection from fuel spills. Combat boots are not impervious to fuel spills. If your boots become saturated with fuel, replace them.

3. **Before performing any maintenance inside fuel cells read and observe the following:**

    a. **Observe all cautions and warnings.**

    b. Have one person, with fire extinguisher, standby as a safety watch.

    c. Wear protective clothing.

WARNING

Ensure that toxic meter is below 20% LEL prior to entering the fuel cell.

    d. Wear a respirator and use a toxic meter.

        (1) Use a respirator for protection against fuel vapors.

        (2) Use a toxic meter to test for a fuel vapor level before entering fuel cell.

END OF TASK

10-2-3. REFUELING PANEL REMOVAL/INSTALLATION 10-2-3

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

References:

TM 55-1520-238-T

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

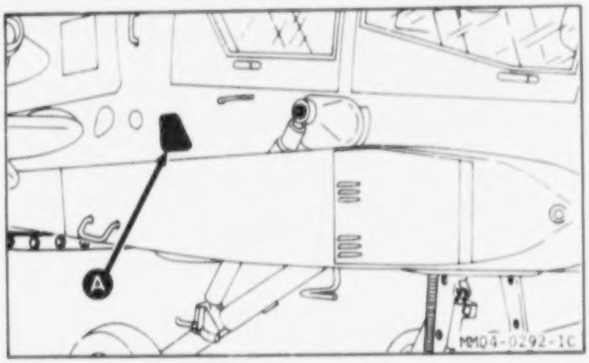
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access door R160 opened

A. REMOVAL

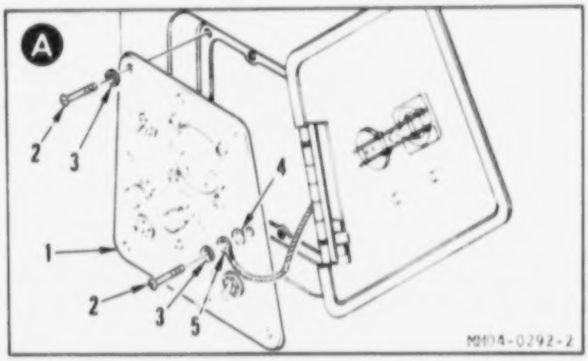
1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open FUEL FILL circuit breaker on pilot forward circuit breaker panel.**



3. **Remove refueling panel (1).**

   a. Remove eight screws (2), washers (3), bonding jumper (5), and one lock washer (4).



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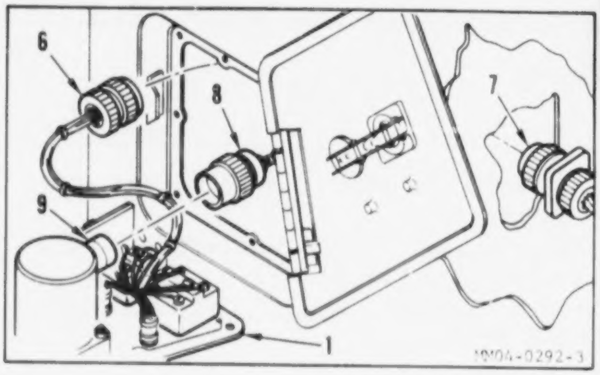
10-2-3. REFUELING PANEL REMOVAL/INSTALLATION (cont) 10-2-3

4. **Pull refueling panel (1) away from mount until electrical connectors can be reached.**

   a. Detach connector P260 (6) from connector A57J1 (7).

   b. Detach connector P1 (8) from connector M1J1 (9).


6
8
7
9
1
104-0292-3

B. **CLEANING**

Wipe all removed and attaching parts with a lint-free cloth (E32).

C. **INSPECTION**

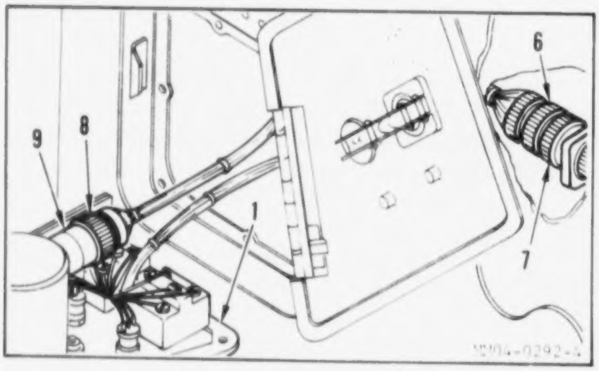
Check connectors for damaged threads, damaged connections, and damaged wire (para 10-2-1).

D. **INSTALLATION**

1. **Hold panel (1) in position.** Attach connectors:

   a. Attach connector P260 (6) to connector A57J1 (7).

   b. Attach connector P1 (8) to connector M1J1 (9).


6
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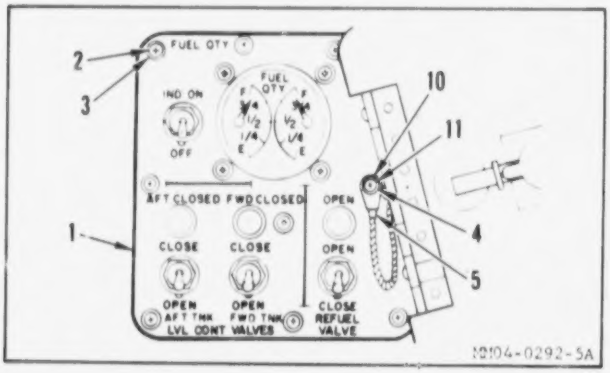
104-0292-4

2. **Install refueling panel (1) on mount.** Aline screw holes.

   a. Install lock washer (4), bonding jumper (5), washer (10), and screw (11).

   b. Install seven washers (3) and screws (2).


2
3
FUEL QTY
FUEL QTY
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3/4
1/2
1/4
E
F
3/4
1/2
1/4
E
IND ON
OFF
10
11
AFT CLOSED
FWD CLOSED
OPEN
1
CLOSE
CLOSE
OPEN
4
5
OPEN
AFT TNK
OPEN
FWD TNK
LVL CONT VALVES
CLOSE
REFUEL
VALVE
104-0292-5A

3. **Inspect (TI).**

4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

5. **Secure access door R160** (para 2-2-2).

END OF TASK

10-2-4. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL REMOVAL/INSTALLATION 10-2-4

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Socket, Deep 1-1/8, 1/2 Drive	5120-00-935-7454
Wrench, Torque 3/8 Drive	5120-00-288-8865

Materials/Parts:

	Packing
(E16)	Petrolatum
(E29)	Lockwire
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

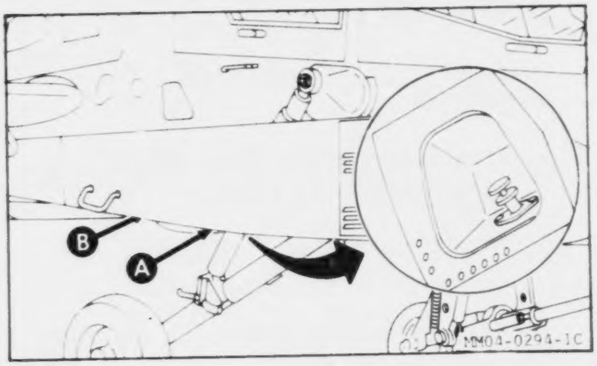
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access doors B170 or B250 removed

NOTE

This task is typical for forward or aft poppet draincock and control. Forward poppet draincock and control are shown.



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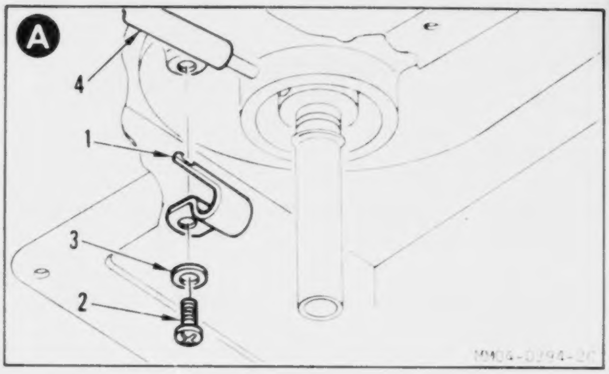
10-2-4. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL REMOVAL/INSTALLATION (cont)

A. REMOVAL

1. **Remove control mounting clamp (1).**

   a. Remove screw (2) and washer (3) from clamp (1).

   b. Remove clamp (1) from control cable (4).



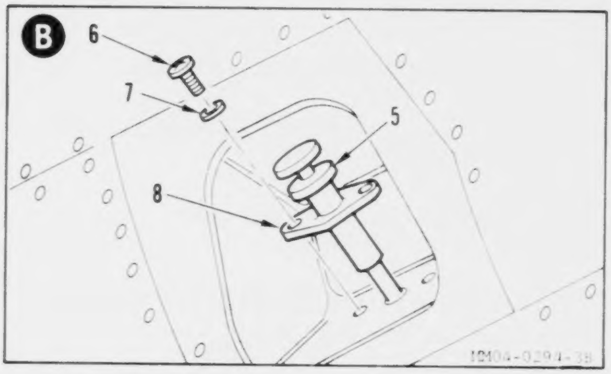
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

2. **Remove control (5).**

   a. Remove two screws (6) and washers (7) from bracket (8).

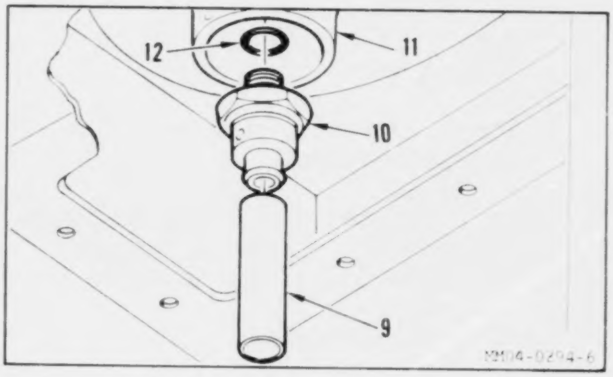
   b. Remove control (5) by pulling straight out from side of helicopter.



3. **Remove fuel drain hose (9).**

   a. Remove lockwire.

   b. Pull hose (9) off poppet draincock (10).



4. **Remove poppet draincock (10) from sump (11).** Remove and discard packing (12) from draincock (10). Use 1-1/8, 1/2 drive deep socket.

GO TO NEXT PAGE

10-2-4. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL REMOVAL/INSTALLATION (cont) 10-2-4

B. CLEANING

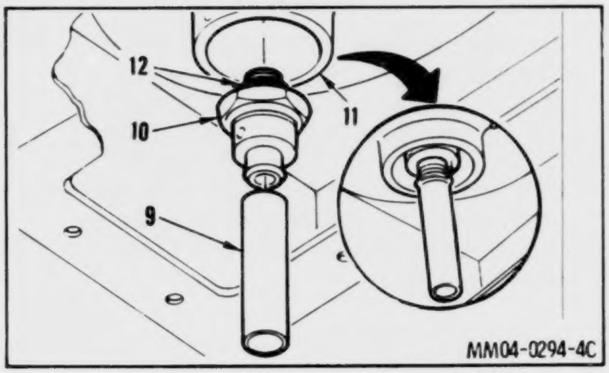
Wipe all removed and attaching parts with a lint-free cloth (E32).

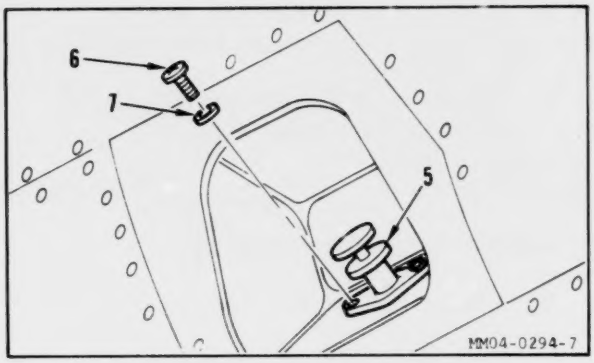
C. INSPECTION

1. **Check surrounding area for corrosion** (para 1-5-38).

2. **Check draincock for damaged threads** (para 10-2-1).

D. INSTALLATION





1. **Install poppet draincock (10).**

   a. Lubricate new packing (12). Use petrolatum (E16).

   b. Install packing (12) on draincock (10).

   c. Lubricate draincock (10) threads. Use petrolatum (E16).

   d. Install draincock (10) in sump (11). Use 1-1/8, 1/2 drive deep socket.

   e. Torque draincock (10) to **140 INCH-POUNDS.**

2. **Install fuel drain hose (9) on poppet draincock (10).** Lockwire hose (9) to draincock (10). Use lockwire (E29).

3. **Install control (5).**

   a. Insert control (5) through opening in right side of helicopter.

   b. Install two washers (7) and two screws (6).

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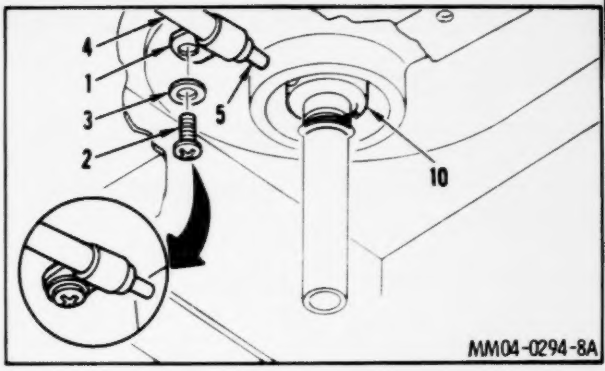
10-2-4. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL ASSEMBLY REMOVAL/INSTALLATION (cont) 10-2-4



4. **Turn lower section of draincock (10) to aline with control (5).**

5. **Install clamp (1).**

   a. Install clamp (1) around cable (4).

   b. Insert cable (4) into hole in draincock (10).

   c. Install washer (3) and screw (2).

6. **Refuel fuel cell** (para 1-5-2). Add about 50 gallons of fuel when refueling fuel cell for functional check.

NOTE

If more fuel is added to fuel cell, it will take longer to drain fuel if functional check fails.

7. **Perform draincock (10) functional leak check.**

   a. Place container under draincock (10).

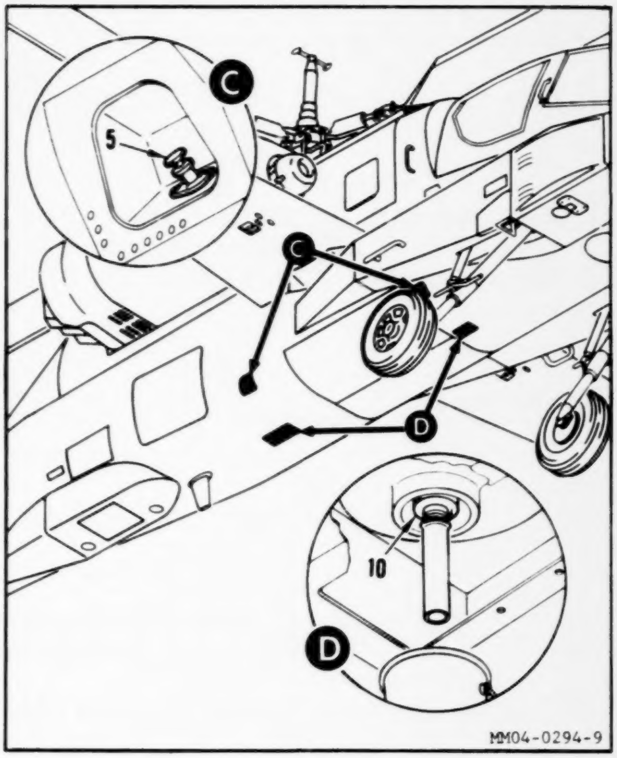
   b. Push control (5) to open draincock (10). Check for fuel drainage.

   c. Release control (5) to close draincock (10). Check that fuel stops draining.

   d. Check draincock (10) for leaks.

8. **Inspect (TI).**

9. **Secure access doors B170 and B250** (para 2-2-2).



END OF TASK

10-2-5. NO. 2 ENGINE FUEL INLET HOSE REPLACEMENT 10-2-5

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

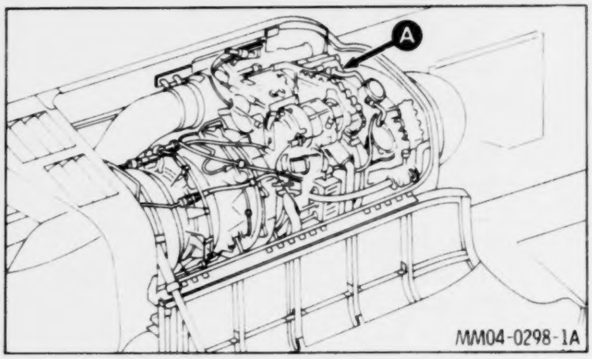
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access door RN1 opened

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open FUEL VLV ACTR circuit breaker on pilot center circuit breaker panel.**
3. **Open FUEL BST and XFEED circuit breaker on pilot center circuit breaker panel.**



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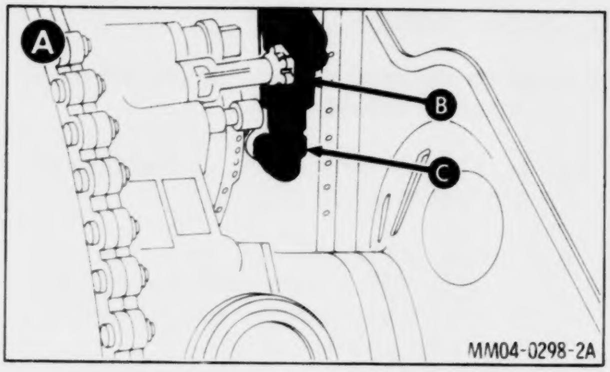
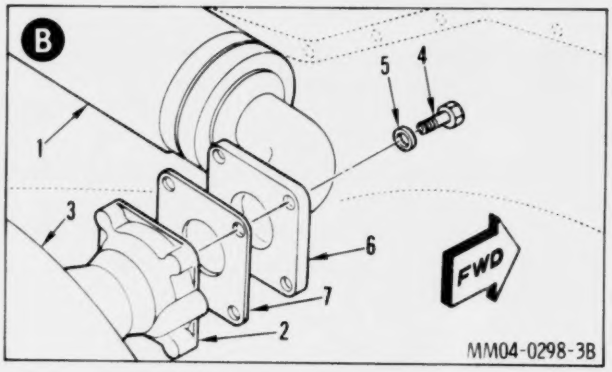
10-2-5. NO. 2 ENGINE FUEL INLET HOSE REPLACEMENT (cont) 10-2-5

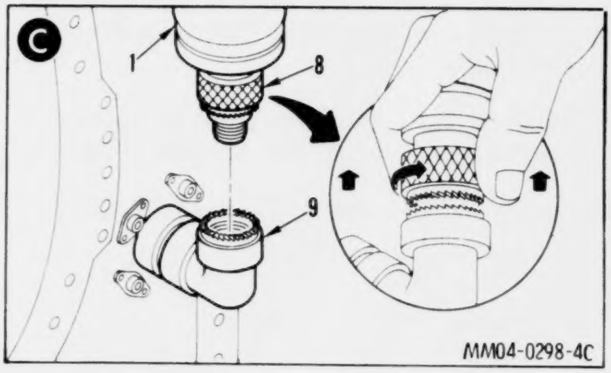
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. **Disconnect No. 2 engine fuel inlet hose (1) from engine mounting flange (2) in right nacelle (3).**
   a. Remove four bolts (4) and washers (5).
   b. Pull hose mounting flange (6) away from flange (2).
   c. Remove and discard seal (7).
5. **Disconnect ratchet sleeve connector (8) from ratchet adapter (9).**
   a. Pull connector (8) up to release locking teeth from adapter (9).
   b. Turn and pull connector (8) from adapter (9).
6. **Remove No. 2 engine fuel inlet hose (1).**







B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

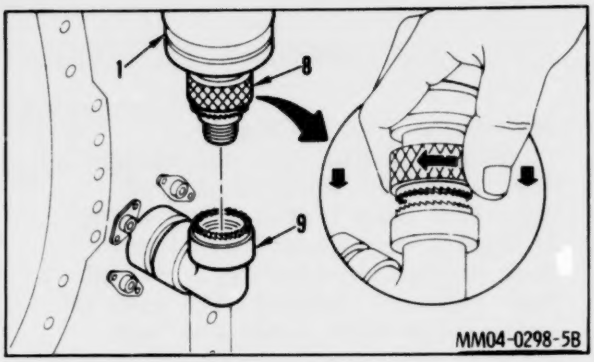
1. **Check No. 2 engine fuel inlet hose, engine mounting flange, adapter, and attaching hardware for cracks and broken or missing teeth** (para 10-2-1).
2. **Check No. 2 engine fuel inlet engine mounting flange, adapter, and attaching hardware for corrosion (1-5-38).**

GO TO NEXT PAGE

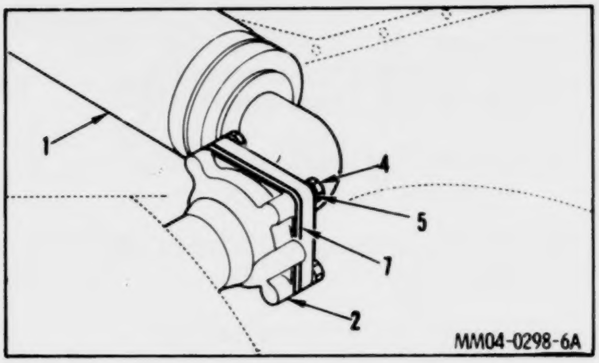
10-2-5. NO. 2 ENGINE FUEL INLET HOSE REPLACEMENT (cont) 10-2-5

D. INSTALLATION

1. **Connect ratchet sleeve connector (8) to ratchet adapter (9).**
   a. Lubricate threads of connector (8). Use petrolatum (E16).
   b. Attach connector (8) to adapter (9). Turn connector (8) until firmly seated and locking teeth engage fully with adapter (9).



2. **Connect No. 2 engine fuel inlet hose (1) to engine mounting flange (2).**
   a. Place new seal (7) and hose (1) on flange (2).
   b. Install four washers (5) and bolts (4).



3. **Inspect (TI).**
4. **Perform fuel system priming operation** (para 1-5-12).
5. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
6. **Secure access door RN1** (para 2-2-2).

END OF TASK

10-2-6. NO. 1 ENGINE FUEL INLET HOSE REPLACEMENT 10-2-6

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, Torque, 1/4 Drive	5210-00-117-4832

Materials/Parts:

	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access door LN1 opened

GO TO NEXT PAGE

10-2-6. NO. 1 ENGINE FUEL INLET HOSE REPLACEMENT (cont) 10-2-6

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.

2. Open FUEL VLV ACTR circuit breaker on pilot center circuit breaker panel.

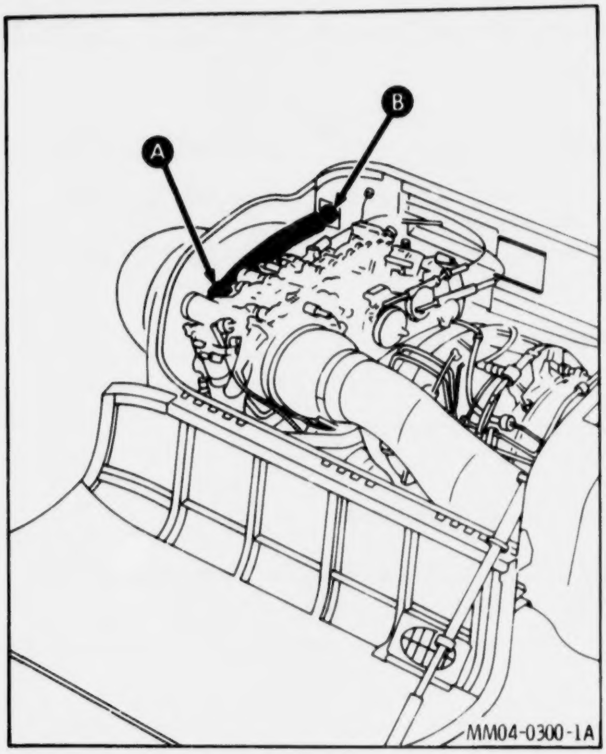
3. Open FUEL BST and XFEED circuit breakers on pilot center circuit breaker panel.

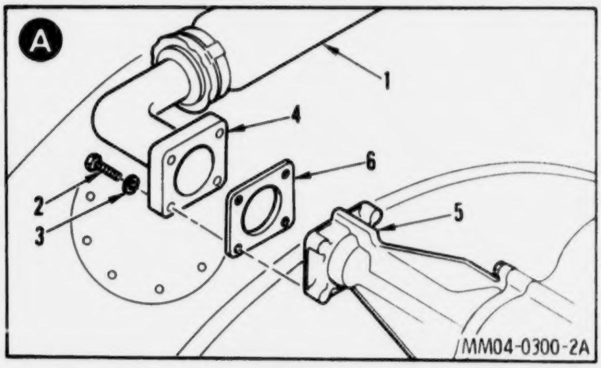
WARNING

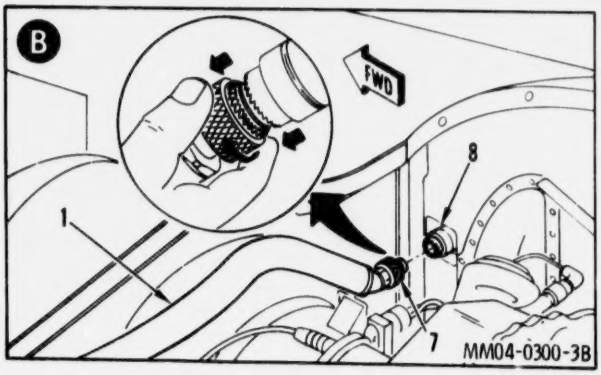
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. Disconnect No. 1 engine inlet fuel hose (1) in left nacelle.
    a. Remove four bolts (2) and washers (3).
    b. Pull hose mounting flange (4) away from engine mounting flange (5).
    c. Remove and discard seal (6).

5. Disconnect ratchet sleeve connector (7) from ratchet adapter (8).
    a. Pull connector (7) to release locking teeth from adapter (8).
    b. Turn and pull connector (7) from adapter (8).







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10-2-6. NO. 1 ENGINE FUEL INLET HOSE REPLACEMENT (cont) 10-2-6

B. CLEANING

Wipe all removed and attaching parts with a lint-free cloth (E32).

C. **INSPECTION**

1. **Check hose, engine mounting flange, and adapter for cracks and broken or damaged teeth** (para 10-2-1).

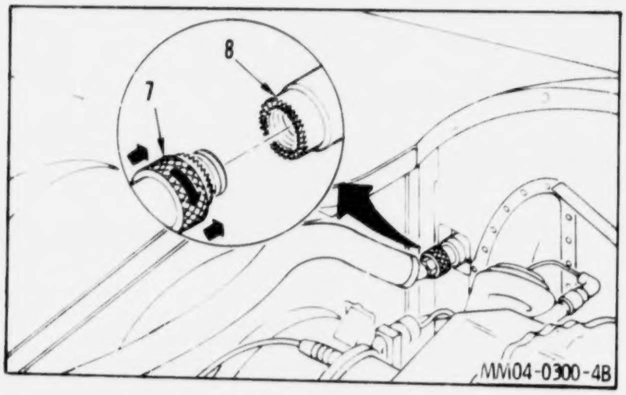
2. **Check mounting flange and adapter for corrosion** (para 1-5-38).

D. **INSTALLATION**

1. **Connect ratchet sleeve connector (7) to ratchet adapter (8).**

   a. Lubricate threads of connector (7). Use petrolatum (E16).

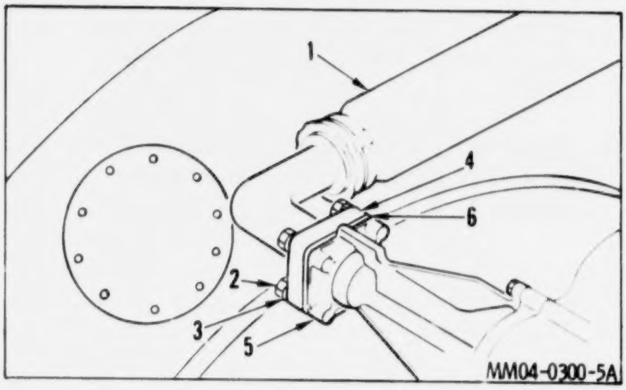
   b. Install connector (7) to adapter (8). Turn connector (7) until firmly seated and locking teeth engage fully with adapter (8).



2. **Connect hose (1) to flange (5).**

   a. Place new seal (6) and flange (4) on flange (5).

   b. Install four washers (3) and bolts (2).



3. **Inspect (TI).**

4. **Perform fuel system priming operation** (para 1-5-12).

5. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

6. **Secure access door LN1** (para 2-2-2).

END OF TASK

10-2-7. NO. 1 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-7

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Seal (2)
	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

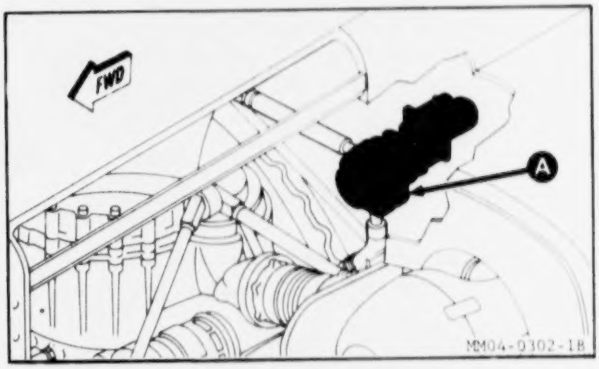
Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access panel L200 removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL VLV ACTR circuit breaker on pilot forward circuit breaker panel.**

3. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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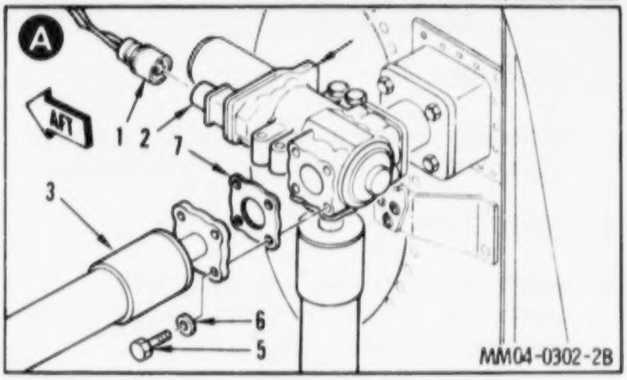
10-2-7. NO. 1 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-7

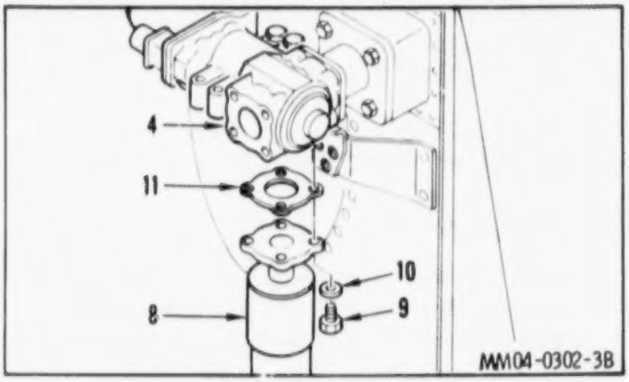
4. **Detach electrical connector P983 (1) from connector MT17J1(2).**

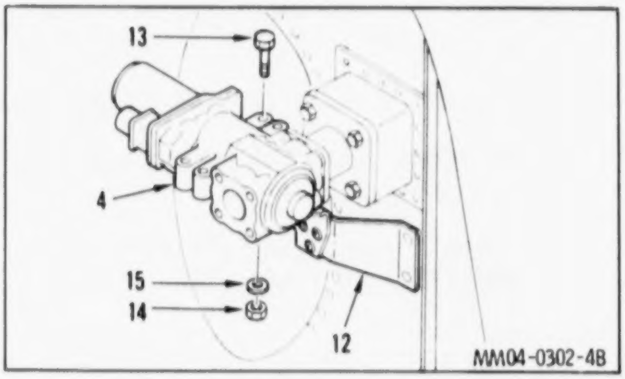
WARNING

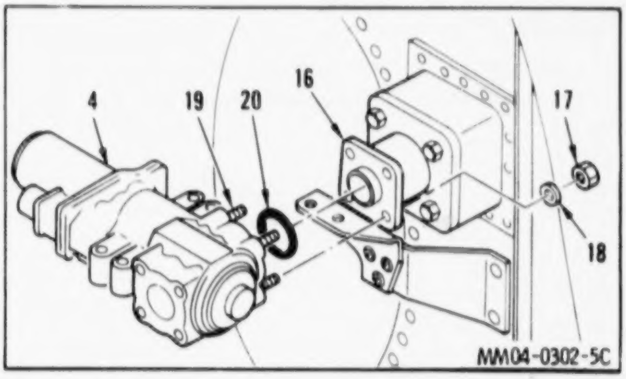
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

5. **Disconnect crossfeed hose (3) from No. 1 engine crossfeed/shutoff valve (4).**
   a. Remove four bolts (5) and washers (6).
   b. Remove hose (3).
   c. Remove and discard seal (7).
6. **Disconnect forward fuel hose (8) from valve (4).**
   a. Remove four bolts (9) and washers (10).
   b. Remove hose (8) and seal (11) from valve (4). Discard seal (11).
7. **Disconnect valve (4) from mounting bracket (12).** Remove two bolts (13), nuts (14), and washers (15).
8. **Remove valve (4) from breakaway valve (16).**
   a. Remove four nuts (17) and washers (18) from studs (19).
   b. Pull valve (4) from valve (16).
   c. Remove and discard packing (20).









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10-2-7. NO. 1 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-7

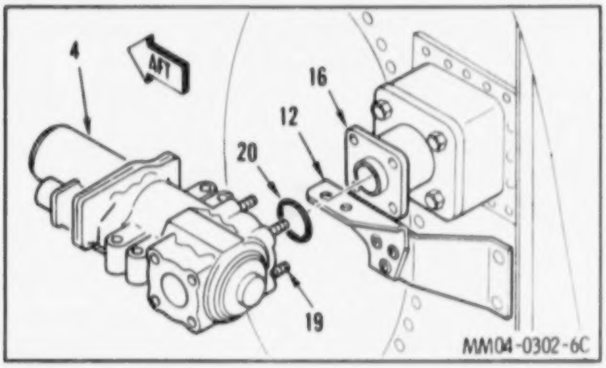
B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

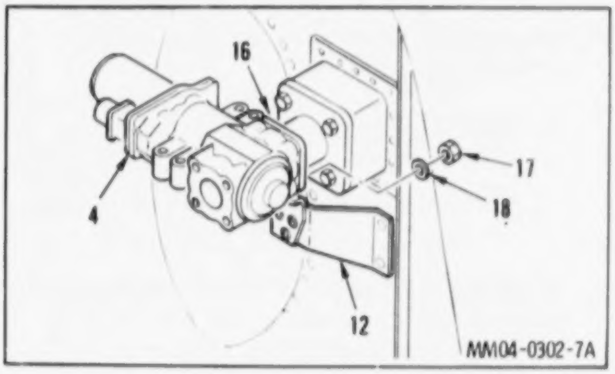
C. INSPECTION

1. **Check all removed and attaching parts for nicks, cracks, gouges, and damaged threads** (para 10-2-1).
2. **Check electrical connector for cracks and distorted, burned, corroded, or bent contacts** (para 10-2-1).
3. **Check all removed and attaching parts for corrosion** (para 1-5-38).

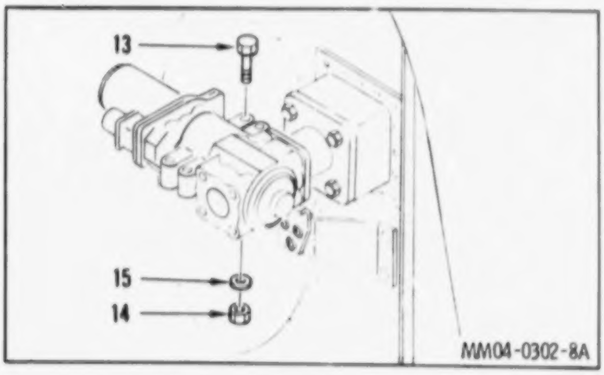
D. INSTALLATION



1. **Install No. 1 engine crossfeed shutoff valve (4) on bracket (12) and breakaway valve (16).**
   a. Lubricate new packing (20). Use petrolatum (E16).
   b. Install packing (20) on valve (16).
   c. Position valve (4) on bracket (12) and valve (16).
   d. Install four washers (18) and nuts (17) on studs (19).



   e. Install two bolts (13), washers (15), two nuts (14).



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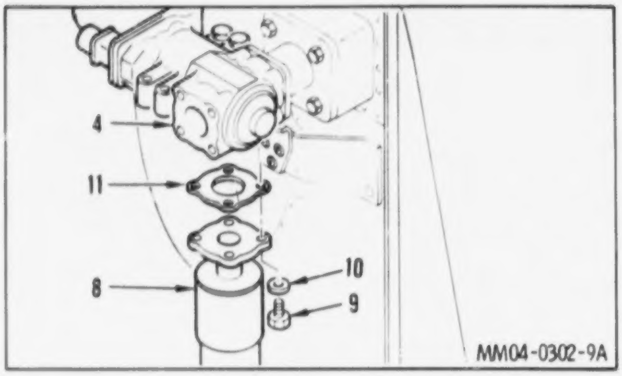
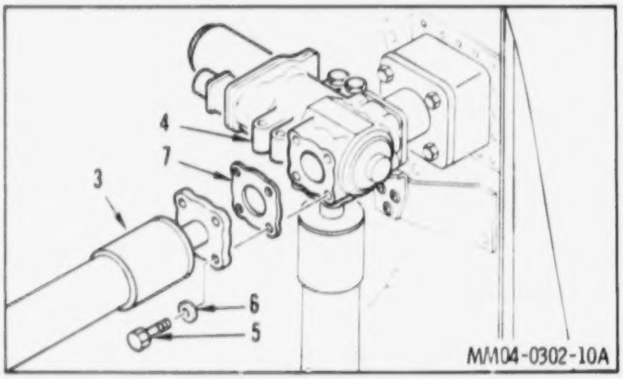
10-2-7. NO. 1 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-7

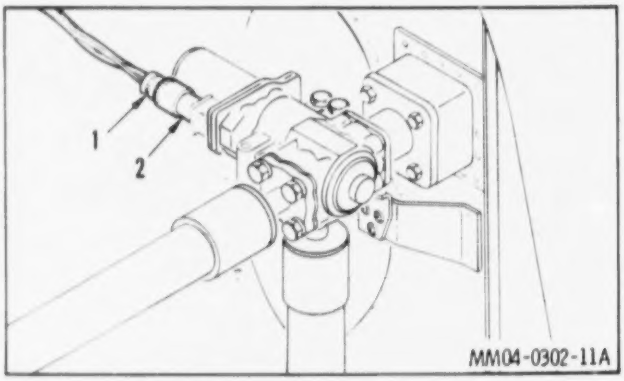
2. **Connect hose (8) to valve (4).**
   a. Lubricate new seal (11) on both sides. Use petrolatum (E16).
   b. Install seal (11) and hose (8) on mounting flange of valve (4).
   c. Install four washers (10) and bolts (9).



3. **Connect crossfeed hose (3) to valve (4).**
   a. Lubricate new seal (7) on both sides. Use petrolatum (E16).
   b. Install seal (7) and hose (3) on mounting flange of valve (4).
   c. Install four washers (6) and bolts (5).



4. **Attach connector P983 (1) to connector MT17J1(2).**
5. **Inspect (TI).**
6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
7. **Secure access panel L200** (para 2-2-2).



END OF TASK

10-2-8. NO. 2 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-8

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

References:

TM 55-1520-238-T

Materials/Parts:

Seal (2)
Packing
(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

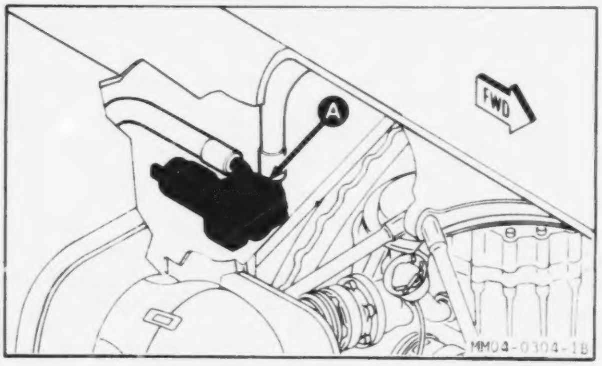
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access panel R200 removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open FUEL VLV ACTR circuit breaker on pilot forward circuit breaker panel.**
3. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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10-2-8. NO. 2 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-8

4. **Detach connector P939 (1) from connector L2J1(2).**

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

5. **Disconnect engine fuel supply hose (3) from No. 2 engine crossfeed/shutoff valve (4).**
   a. Remove four bolts (5) and washers (6).
   b. Remove hose (3) and seal (7) from valve (4). Discard seal (7).
6. **Disconnect crossfeed fuel hose (8) from valve (4).**
   a. Remove four bolts (9) and washers (10).
   b. Remove hose (8) and seal (11) from valve (4). Discard seal (11).
7. **Disconnect valve (4) from mounting bracket (12).** Remove two bolts (13), nuts (14), and washers (15).
8. **Disconnect valve (4) from engine firewall breakaway valve (16).**
   a. Remove four nuts (17) and washers (18) from studs (19).
   b. Pull valve (4) from valve (16).
   c. Remove and discard packing (20).

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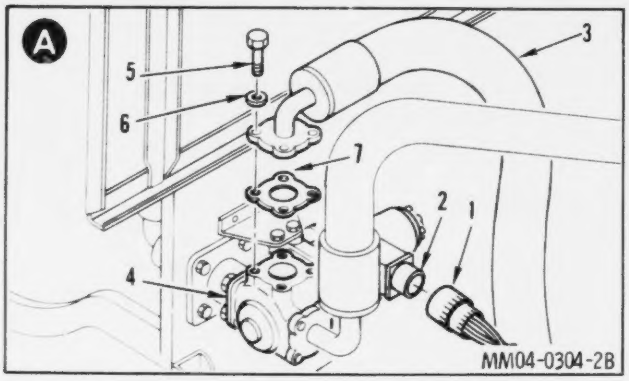
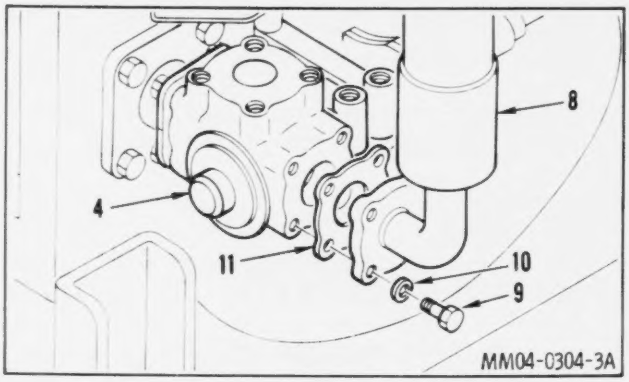
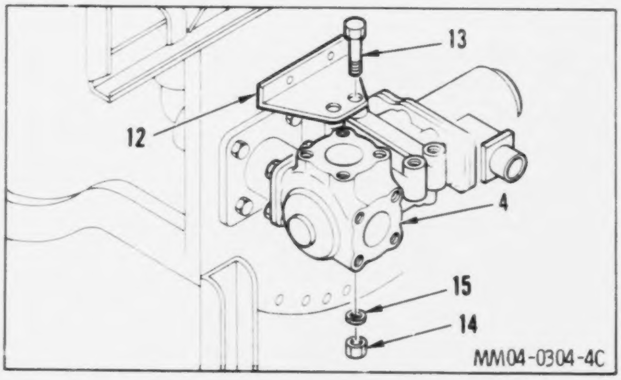
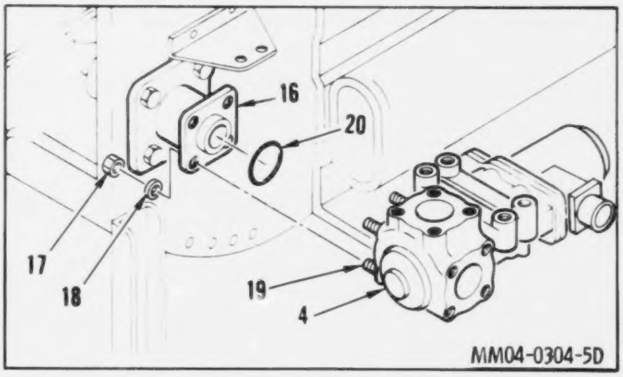




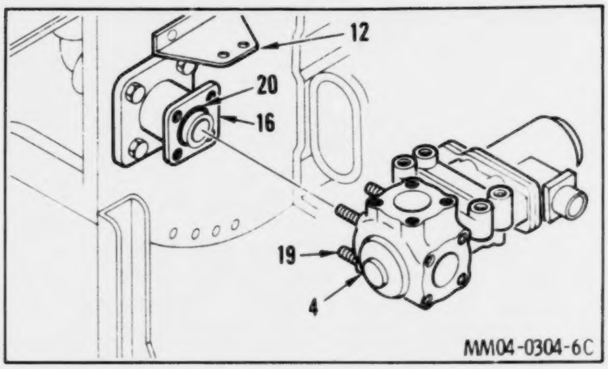




10-2-8. NO. 2 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-8

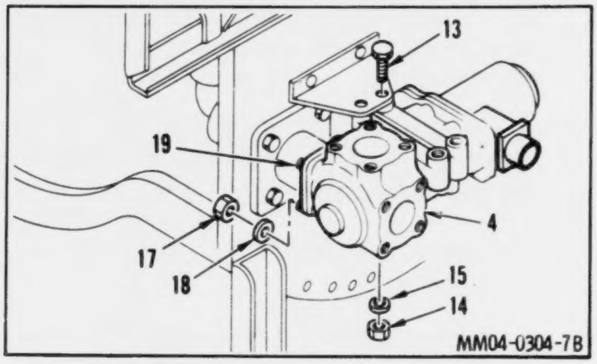
B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).



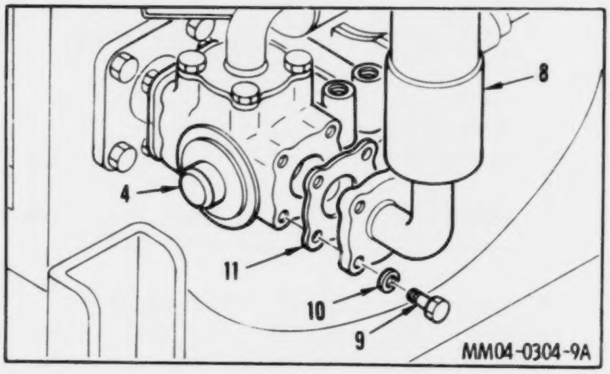
C. INSPECTION

1. **Check all removed and attaching parts for nicks, dents, cracks, and damaged threads** (para 10-2-1).
2. **Check electrical connector for cracks and distorted, burred, corroded, or bent contacts** (para 10-2-1).
3. **Check all removed and attaching parts, for corrosion** (para 1-5-38).



D. INSTALLATION

1. **Install valve (4) on bracket (12) and breakaway valve (16).**
   - a. Lubricate new packing (20). Use petrolatum (E16).
   - b. Install packing (20) on valve (16).
   - c. Position valve (4) on bracket (12) and valve (16).
   - d. Install four washers (18) and nuts (17) on studs (19).
   - e. Install two bolts (13), washers (15), and nuts (14).



2. **Connect hose (8) to valve (4).**
   - a. Lubricate new seal (11) on both sides. Use petrolatum (E16).
   - b. Install seal (11) and hose (8) on valve (4).
   - c. Install four bolts (9) and four washers (10).

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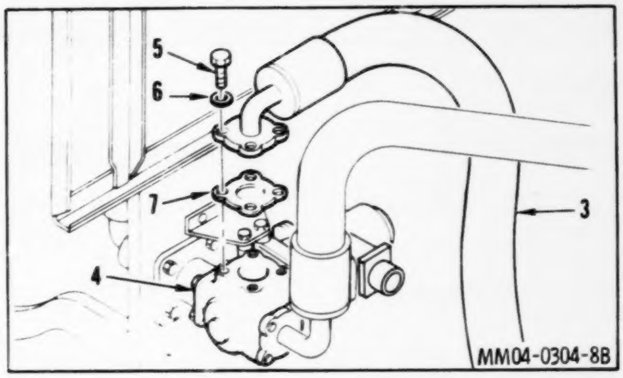
10-2-8. NO. 2 ENGINE CROSSFEED/SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-8

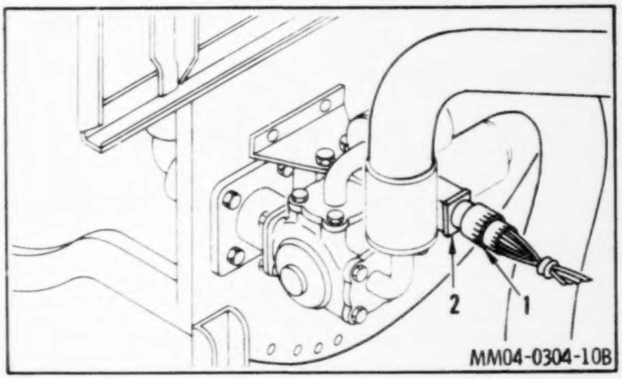


3. **Connect hose (3) to valve (4).**

   a. Lubricate new seal (7) on both sides. Use petrolatum (E16).

   b. Install seal (7) and hose (3) on valve (4).

   c. Install four washers (6) and bolts (5).



4. **Attach connector P939 (1) to connector L2J1(2).**

5. **Inspect (TI).**

6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

7. **Secure access panel R200** (para 2-2-2).

END OF TASK

10-2-9. CROSSFEED FUEL HOSE REPLACEMENT 10-2-9

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

References:

TM 55-1520-238-T

Materials/Parts:

	Seal (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Equipment Conditions:

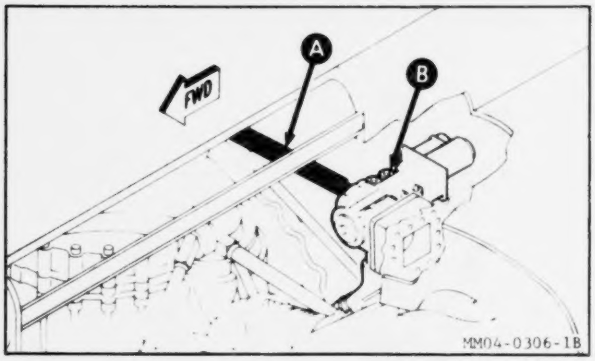
Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access panels L200 and R200 removed

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**
2. **Open FUEL BST and XFEED circuit breakers on pilot center circuit breaker panel.**



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10-2-9. CROSSFEED FUEL HOSE REPLACEMENT (cont) 10-2-9

3. **Remove two crossfeed fuel hose clamps (1).**

   a. Hold two screws (2).

   b. Remove two nuts (3) and washers (4).

   c. Remove two screws (2).

   d. Remove two clamps (1) from hose (5).

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. **Disconnect crossfeed fuel hose (5) from No. 1 engine crossfeed shutoff valve (6).**

   a. Remove four bolts (7) and washers (8).

   b. Pull hose (5) away from valve (6).

   c. Remove and discard seal (9).

5. **Disconnect hose (5) from No. 2 engine crossfeed shutoff valve (10).**

   a. Remove four bolts (11) and washers (12).

   b. Pull hose (5) away from valve (10).

   c. Remove and discard seal (13).

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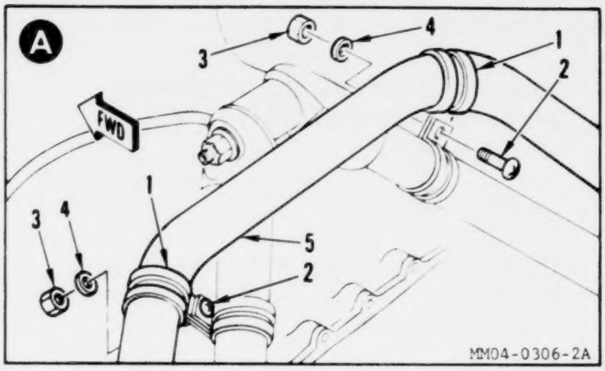
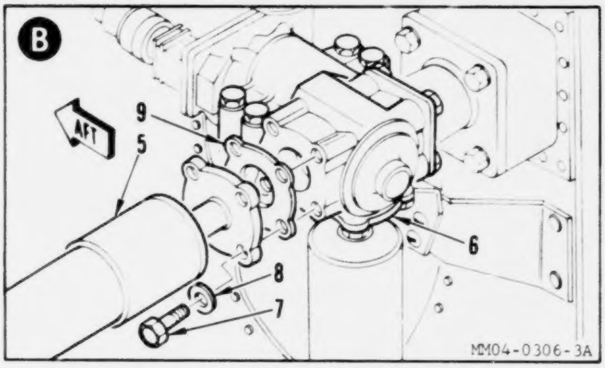

A
3
4
1
2
FWD
1
5
3
4
2
MM04-0306-2A


B
9
5
AFT
6
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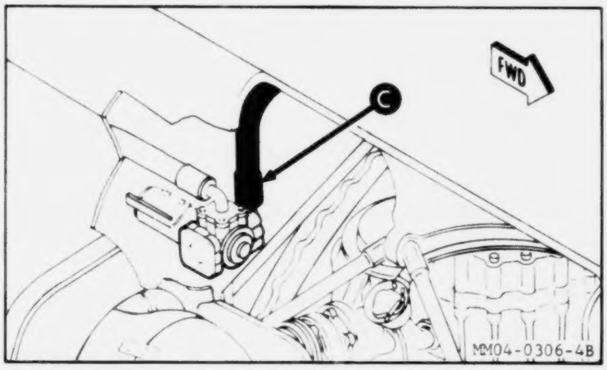
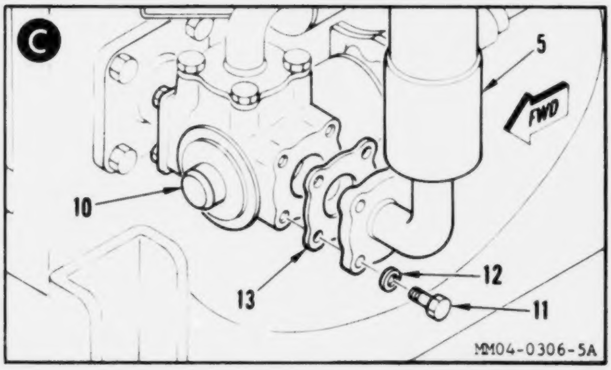
MM04-0306-3A


FWD
C
MM04-0306-4B


C
5
FWD
10
12
13
11
MM04-0306-5A

10-2-9. CROSSFEED FUEL HOSE REPLACEMENT (cont) 10-2-9

B. CLEANING

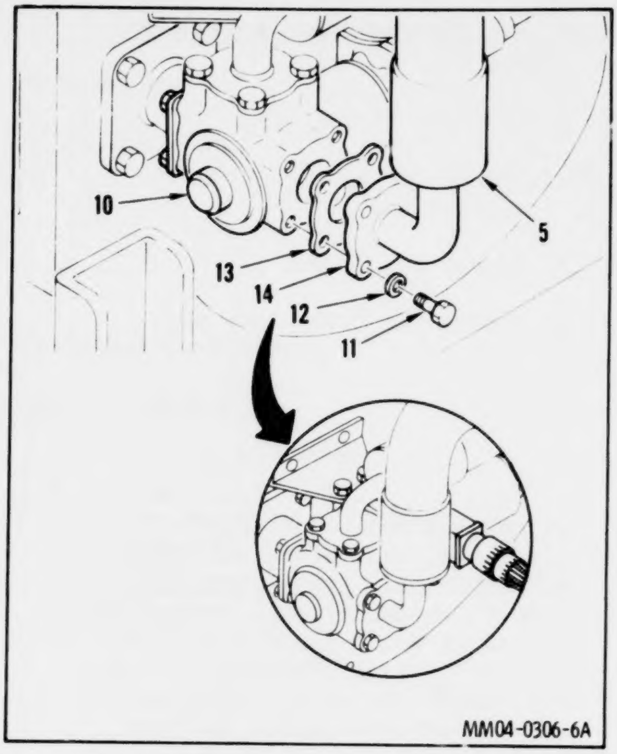
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

D. INSTALLATION

1. **Connect crossfeed fuel hose (5) to No. 2 engine crossfeed shutoff valve (10).**
   a. Lubricate new seal (13) on both sides. Use petrolatum (E16).
   b. Place seal (13) and hose flange (14) on flange of valve (10).
   c. Install four washers (12) and bolts (11).
2. **Connect hose (5) to No. 1 engine crossfeed shutoff valve (6).**
   a. Lubricate new seal (9) on both sides. Use petrolatum (E16).
   b. Place seal (9) and hose flange (15) on flange of valve (6).
   c. Install four washers (8) and four bolts (7).



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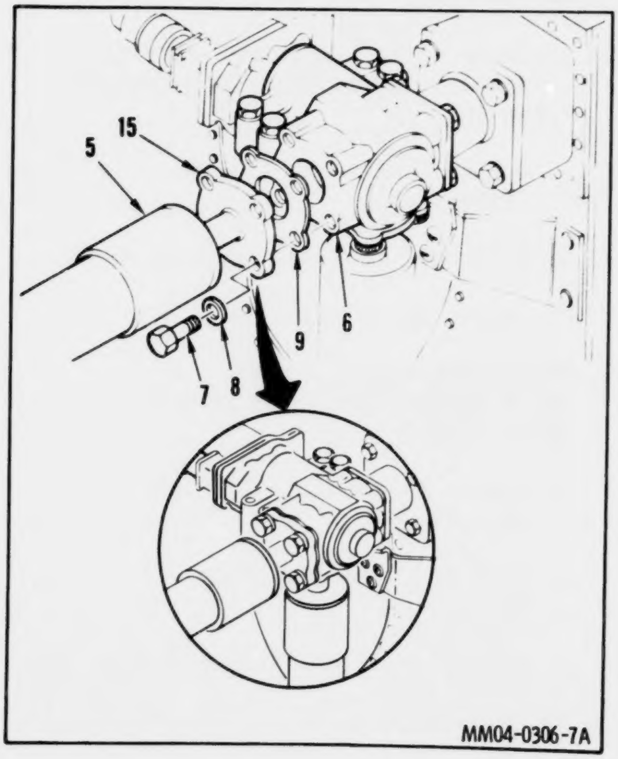

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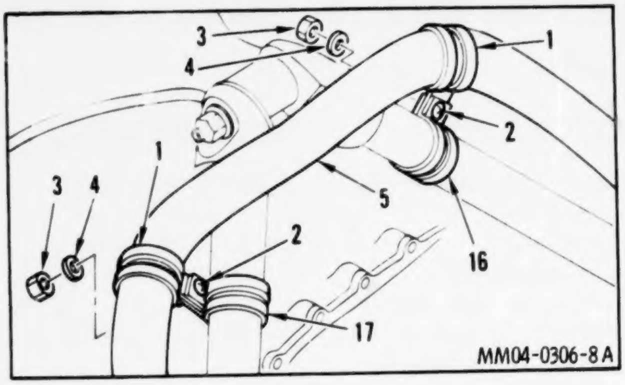
10-2-9. CROSSFEED FUEL HOSE REPLACEMENT (cont) 10-2-9



3. **Install two hose clamps (1) on crossfeed fuel hose (5).**
   a. Aline holes in two clamps (1) with holes in two clamps (16).
   b. Install two screws (2) through holes in clamps (1) and (16).
   c. Install two washers (4) and two nuts (3) on two screws (2).
4. **Install clamp (1) on hose (5).**
   a. Aline hole in clamp (1) with hole in clamp (17).
   b. Install screw (2) through holes in clamps (1) and (17).
   c. Install washer (4) and nut (3) on screw (2).
5. **Inspect (TI).**
6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
7. **Secure access panels L200 and R200** (para 2-2-2).

END OF TASK

10-2-10. NO. 2 ENGINE FUEL SUPPLY HOSE REPLACEMENT 10-2-10

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Crowfoot Attachment, 1-1/4, 3/8 Drive	5120-00-293-2567
Wrench, 1-3/8 & 1-7/16 Open-end	5120-00-277-2324

Materials/Parts:

	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

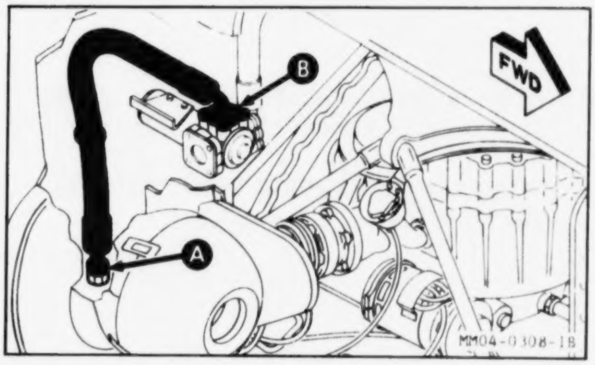
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access doors T250L, T250R, T290L, T290R, and L325 opened
	Access panel R200 removed

A. **REMOVAL**

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL BST and XFEED circuit breakers on pilot center circuit breaker panel.**



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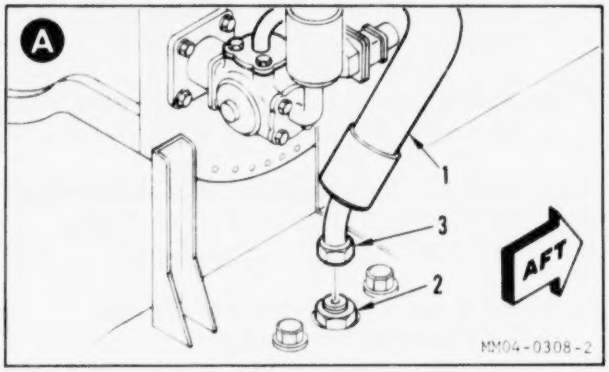
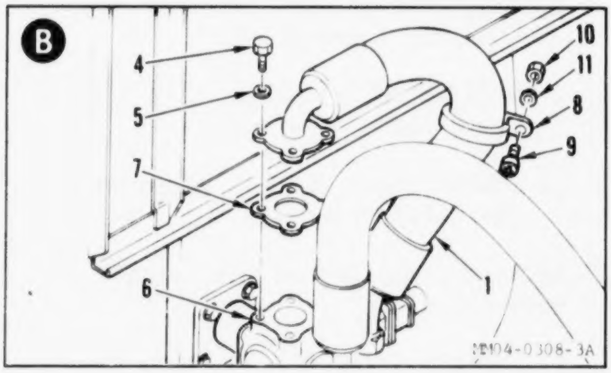
10-2-10. NO. 2 ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-10

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



3. Disconnect No. 2 engine fuel supply hose (1) from union (2) on main transmission deck.
   a. Hold union (2). Use 1-3/8 open-end wrench.
   b. Remove hose nut (3) from union (2). Use 1-1/4 crowfoot.



4. Remove four bolts (4) and washers (5).
5. Remove and discard seal (7).
6. Remove clamp (8) from fuel supply hose (1).
   a. Hold screw (9).
   b. Remove nut (10) and washer (11).
7. Remove fuel supply hose (1).

B. CLEANING

Wipe all removed and attaching parts with a lint-free cloth (E32).

C. INSPECTION

Check valve and union for cracks, nicks, gouges, and damaged threads (para 10-2-1).

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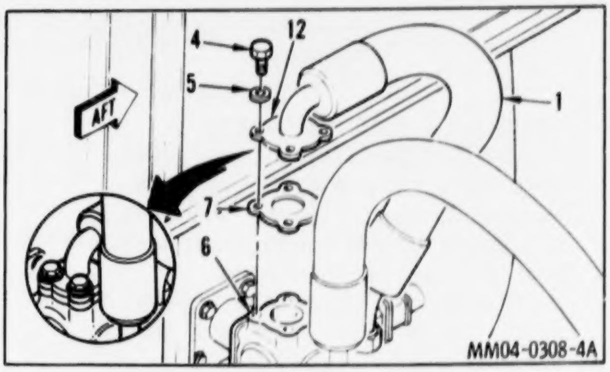
10-2-10. NO. 2 ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-10

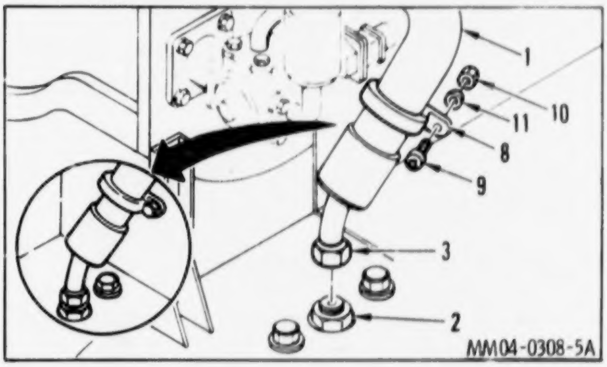
D. INSTALLATION



NOTE

Hose elbow points aft when installed.

1. **Connect hose (1) to valve (6).**
   - a. Lubricate new seal (7) on both sides. Use petrolatum (E16).
   - b. Place seal (7) and hose flange (12) on valve (6). Aline bolt holes.
   - c. Install four washers (5) and four bolts (4), through flange (12), and seal (7).



2. **Connect hose (1) to union (2) on main transmission deck.**
   - a. Lubricate threads of union (2). Use petrolatum (E16).
   - b. Hold union (2). Use 1-3/8 open-end wrench.
   - c. Install hose nut (3) on union (2). Use 1-1/4 crowfoot.
3. **Install clamp (8) on fuel supply hose (1).**
   - a. Install screw (9) to clamp (8).
   - b. Hold screw (9).
   - c. Install washer (11) and nut (10) on screw (9).
4. **Inspect (TI).**
5. **Perform fuel system priming operation** (para 1-5-12).
6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
7. **Secure access doors T250L, T250R, T290L, T290R, L325, and access panel R200** (para 2-2-2).

END OF TASK

10-2-11. NO. 1 ENGINE LOWER FUEL SUPPLY HOSE REPLACEMENT 10-2-11

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-1/4 & 1-5/16 Open-end	5120-00-277-2321
Wrench, 1-3/8 & 1-7/16 Open-end	5120-00-277-2324
Wrench, Strap	5120-00-242-3249

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

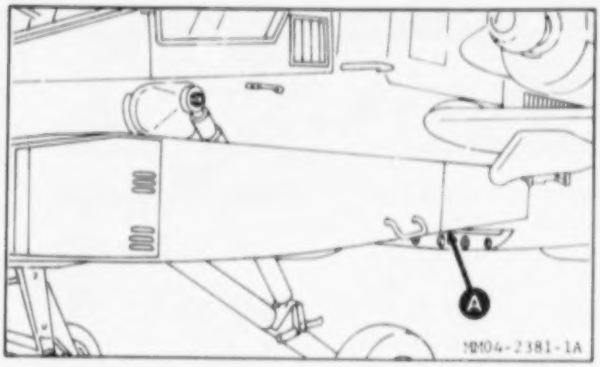
TM 9-1090-208-23
TM 55-1520-238-T

Equipment Conditions:

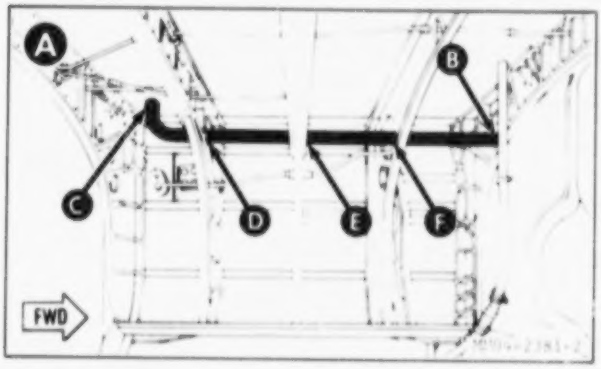
Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system venting performed
TM 9-1090-208-23	Ammunition storage magazine removed

GO TO NEXT PAGE

10-2-11. NO. 1 ENGINE LOWER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-11

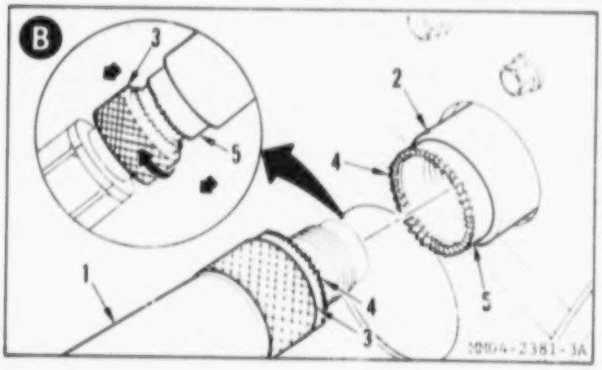


A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



1. Disconnect No. 1 engine lower fuel supply hose (1) from breakaway valve (2).
   a. Pull sleeve (3) to release locking teeth (4) from fitting (5).
   b. Turn and pull sleeve (3) from fitting (5).

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10-2-11. NO. 1 ENGINE LOWER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-11

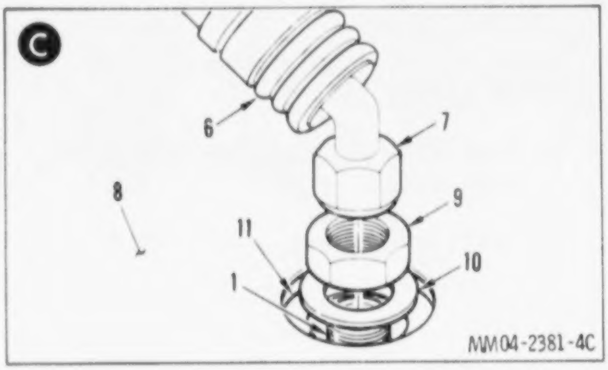
2. **Disconnect fuel supply hose (1) from left engine upper fuel supply hose (6).**

   a. In ammunition bay, one person hold hose (1). Use strap wrench.

   b. From transmission deck (8), second person disconnect hose nut (7). Use 1-1/4 open-end wrench.

   c. From transmission deck (8), remove jam nut (9) and washer (10). Use 1-3/8 open-end wrench.

   d. In ammunition bay, pull hose (1) from mounting hole. Remove washer (11).

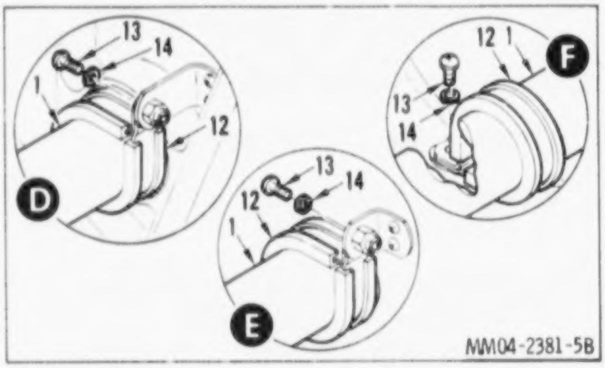


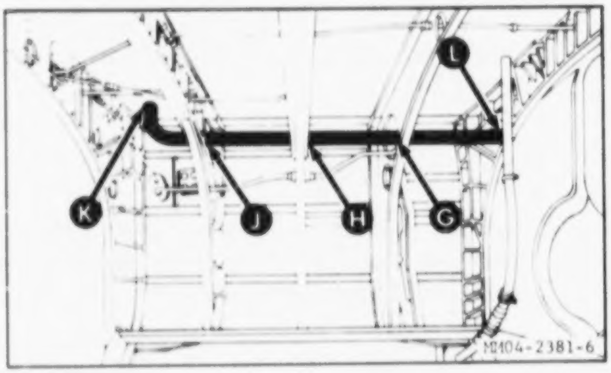
3. **Remove three clamps (12) from fuel supply hose (1).**

   a. Remove three screws (13) and three washers (14) from clamps (12).

   b. Remove clamps (12) from hose (1).

   c. Feed hose (1) through bulkhead openings.





B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

1. **Check fuel supply hose and breakaway valve for cracks and damaged threads** (para 10-2-1).

2. **Check three clamp brackets for cracks and damaged nut plates.** None allowed.

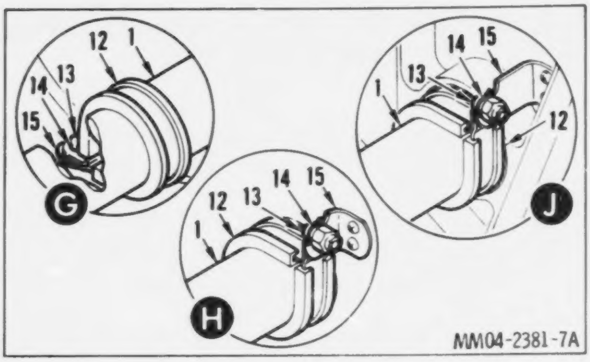
3. **Check transmission deck mounting hole for cracks and other damage.** None allowed.

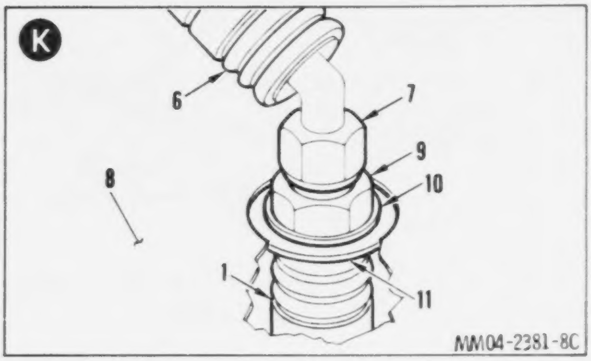
GO TO NEXT PAGE

10-2-11. NO. 1 ENGINE LOWER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-11

D. INSTALLATION

1. **Install fuel supply hose (1) and three clamps (12).**
   - a. Feed hose (1) through bulkhead openings.
   - b. Position three clamps (12) on hose (1).
   - c. Aline clamps (12) with holes in brackets (15).
   - d. Install one washer (14) and one screw (13) in each clamp (12).
   - e. Tighten screws (13).
2. **Connect hose (1) to hose (6).**
   - a. Install washer (11) on hose (1) fitting, in ammunition bay.
   - b. Lubricate fitting of hose (1) in ammunition bay. Use petrolatum (E16).
   - c. Push fitting of hose (1) through mounting hole in transmission deck (8).
   - d. One person hold hose (1). Use strap wrench.
   - e. Second person install washer (10) and jam nut (9) from deck (8). Use 1-3/8 open-end wrench.
   - f. Connect host nut (7) to hose (1) on deck (8). Use 1-1/4 open-end wrench.





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10-2-11. NO. 1 ENGINE LOWER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-11

3. **Connect hose (1) to valve (2).**

   a. Lubricate sleeve (3). Use petrolatum (E16).

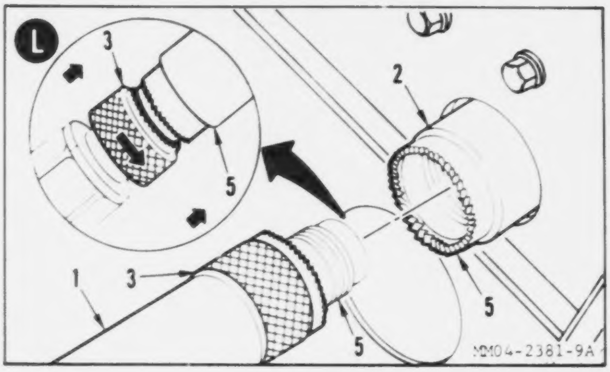
   b. Install sleeve (3) on fitting (5).

   c. Turn sleeve (3) until firmly seated and locking teeth engaged with fitting (5).

4. **Inspect (TI).**

5. **Perform fuel system priming operation** (para 1-5-12).
6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

7. **Install ammunition storage magazine** (TM 9-1090-208-23).



END OF TASK

10-2-12. NO. 2 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-12

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	510-00-323-4692

Materials/Parts:

	Gasket
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

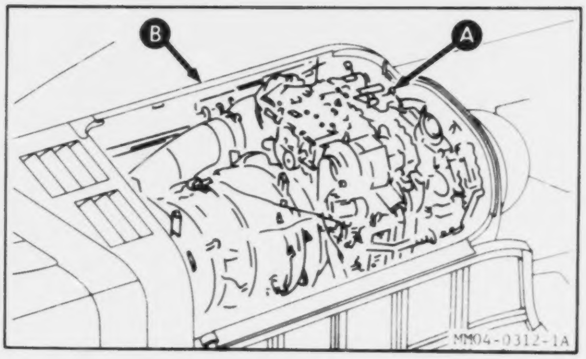
Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access panel R200 removed and door RN1 opened
10-2-8	No. 2 engine crossfeed/shutoff valve removed

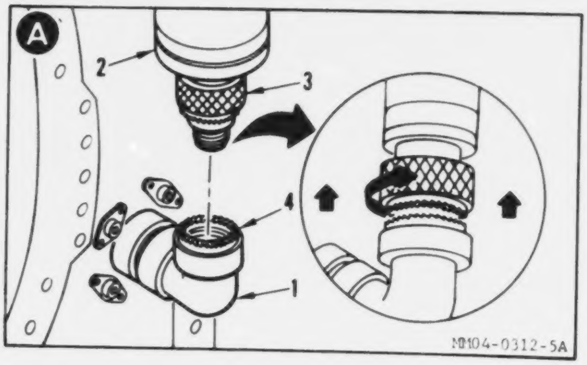
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Disconnect No. 2 engine firewall breakaway valve (1) from No. 2 engine inlet fuel hose (2).**
   - a. Lift connector (3) to release locking teeth from adapter (4).
   - b. Turn connector (3) until sleeve clears adapter (4).





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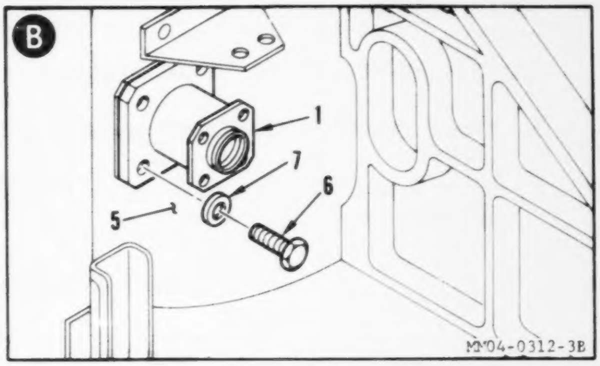
10-2-12. NO. 2 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-12

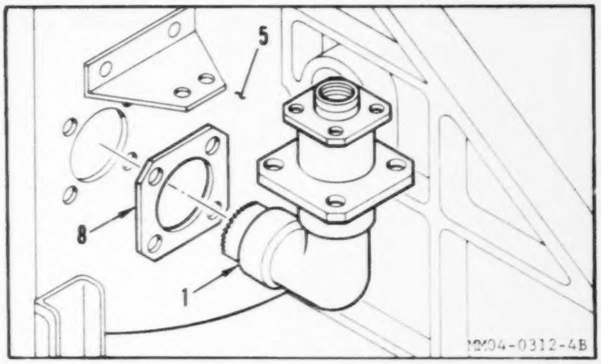
2. **Remove valve (1) from firewall (5).**

   a. Remove four bolts (6) and washers (7).



   b. Pull and rotate valve (1) from firewall (5).

   c. Remove and discard gasket (8).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for damage (para 10-2-1).

GO TO NEXT PAGE

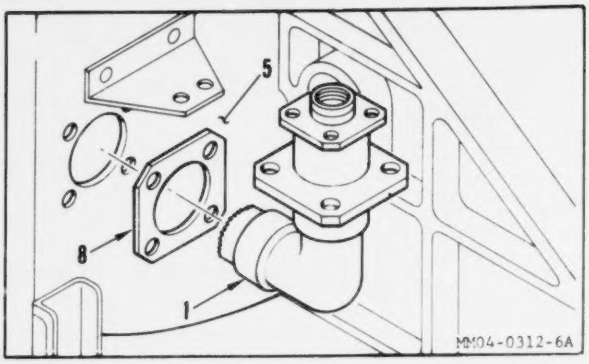
10-2-12. NO. 2 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-12

D. INSTALLATION

1. **Install valve (1) on firewall (5).**

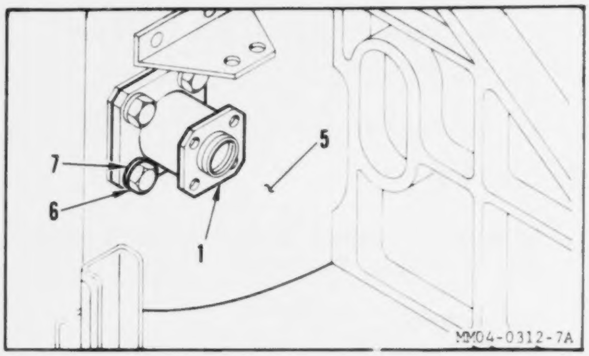
   a. Place new gasket (8) on valve (1).

   b. Insert and rotate valve (1) through opening in firewall (5).



   c. Aline mounting holes of valve (1) with holes in firewall (5).

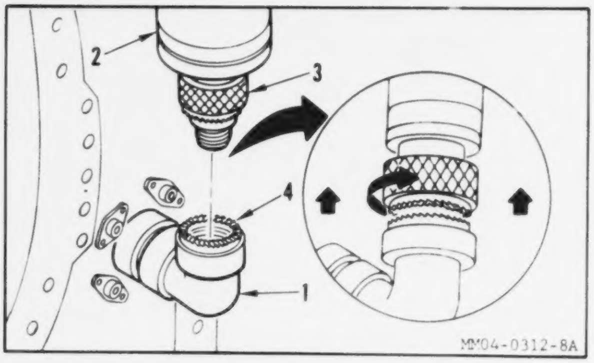
   d. Install four washers (7) and bolts (6).



2. **Connect breakaway valve (1) to No. 2 engine inlet fuel hose (2).**

   a. Aline connector (3) with adapter (4).

   b. Turn connector (3) until firmly seated and locking teeth engage with adapter (4).



3. **Install right crossfeed shutoff valve** (para 10-2-8).

4. **Inspect (TI).**

5. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

6. **Secure access door RN1 and access panel R200** (para 2-2-2).

END OF TASK

10-2-13. NO. 1 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-13

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Gasket
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

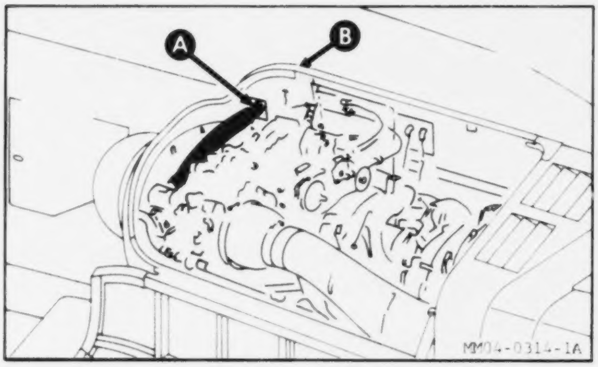
References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-5-11	Fuel system vented
2-2-2	Access panel L200 removed and door LN1 opened
10-2-7	No. 1 engine crossfeed/shutoff valve removed

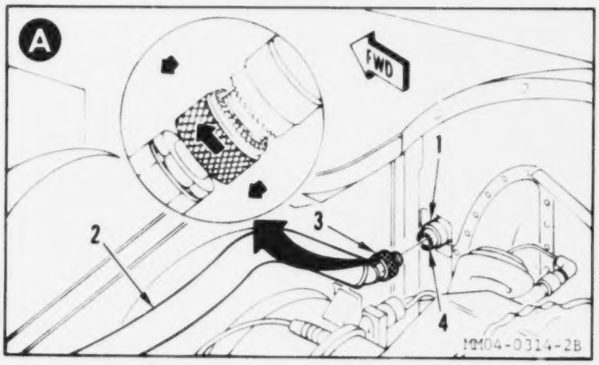
A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Disconnect firewall breakaway valve (1) from No. 1 engine inlet fuel hose (2).**
   a. Pull sleeve (3) away from adapter (4) to release locking teeth.
   b. Turn sleeve (3) until it clears adapter (4).



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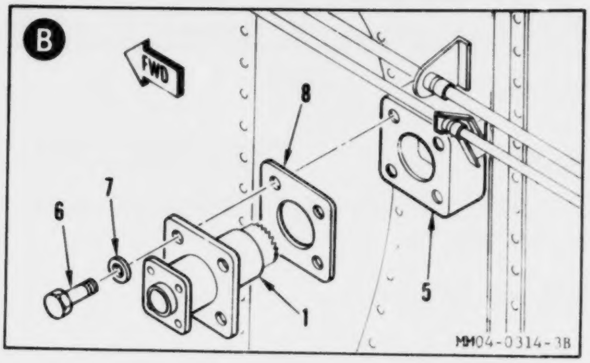
10-2-13. NO. 1 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-13

2. **Remove valve (1) from bracket (5).**

   a. Remove four bolts (6) and washers (7).

   b. Remove valve (1) and gasket (8) from bracket (5). Discard gasket (8).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for nicks, cracks, dents, and damaged threads (para 10-2-1).

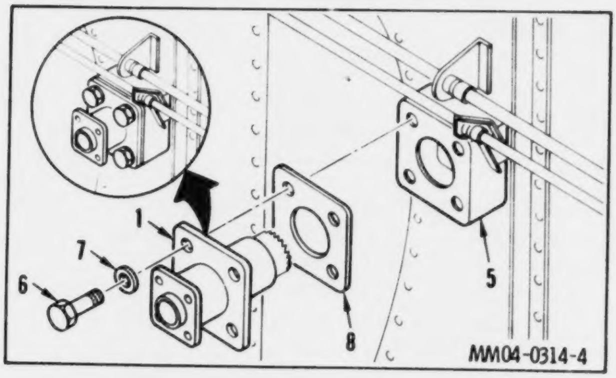
D. **INSTALLATION**

1. **Install valve (1) on bracket (5).**

   a. Install new gasket (8) on bracket (5).

   b. Place valve (1) through opening in firewall. Aline mounting bolt holes.

   c. Install four washers (7) and bolts (6).



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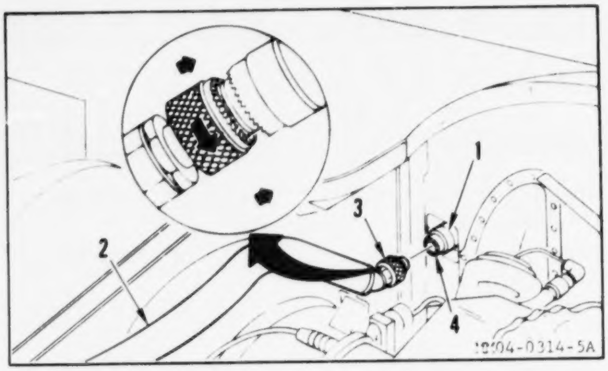
10-2-13. NO. 1 ENGINE FIREWALL BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-13



2. **Connect hose (2) to valve (1).** Aline sleeve (3) with adapter (4). Turn sleeve (3) until locking teeth are fully engaged.

3. **Install No. 1 engine crossfeed/shutoff valve** (para 10-2-7).

4. **Inspect (TI).**

5. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

6. **Secure access door LN1 and access panel L200** (para 2-2-2).

END OF TASK

10-2-14. NO. 1 ENGINE UPPER FUEL SUPPLY HOSE REPLACEMENT 10-2-14

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-1/4 & 1 5/16 Open-end	5120-00-277-2321
Wrench, 1-3/8 & 1-7/16 Open-end	5120-00-277-2324
Wrench, Strap	5120-00-242-3249

Materials/Parts:

	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

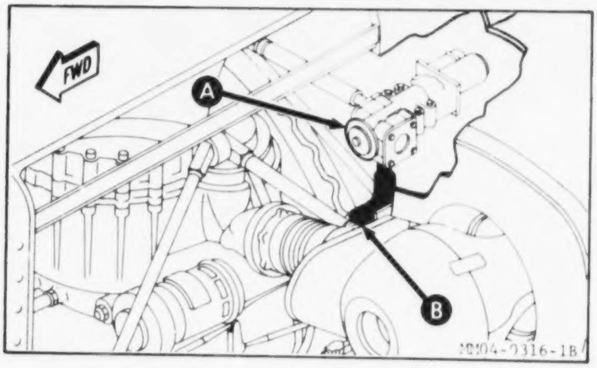
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
2-2-2	Access panel L200 removed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.

2. Open FUEL XFEED and BST circuit breakers on pilot center circuit breaker panel.



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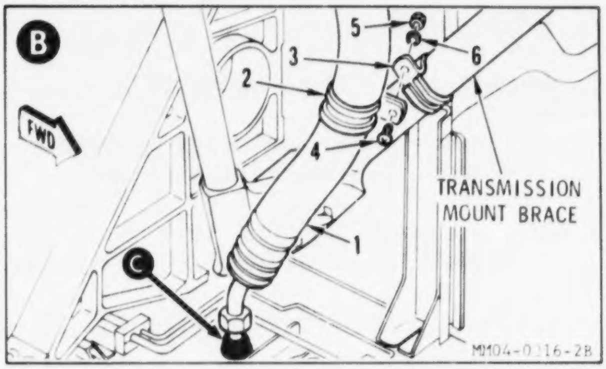
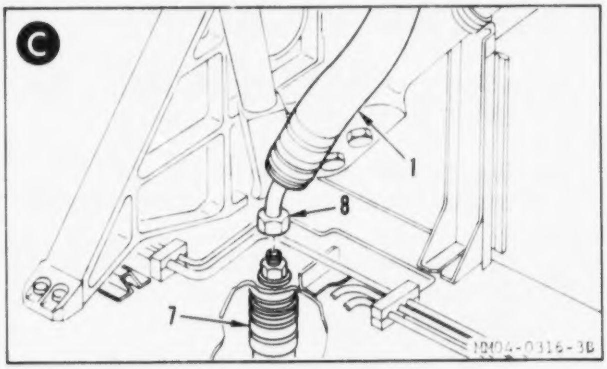
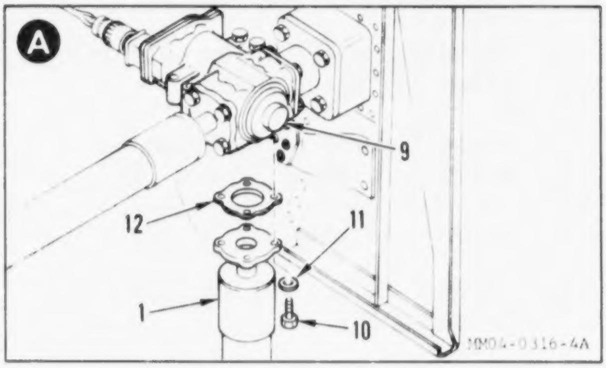
10-2-14. NO. 1 ENGINE UPPER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-14

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.







3. **Remove No. 1 engine upper fuel supply hose (1).** Loosen nut (8).
4. **Disconnect hose clamp (2) from hose clamp (3).**
   a. Hold screw (4).
   b. Remove nut (5) and washer (6).
   c. Remove clamp (2) from hose (1).
5. **Disconnect fuel supply hose (1) from No. 1 engine lower fuel supply hose (7).**
   a. One person hold hose (7) in ammunition bay. Use strap wrench.
   b. Second person disconnect hose nut (8) from transmission deck. Use 1-1/4 open-end wrench.
6. **Disconnect fuel supply hose (1) from crossfeed/shutoff valve (9).**
   a. Remove four bolts (10) and washers (11).
   b. Remove and discard seal (12).

B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks, gouges, or damaged threads (para 10-2-1).

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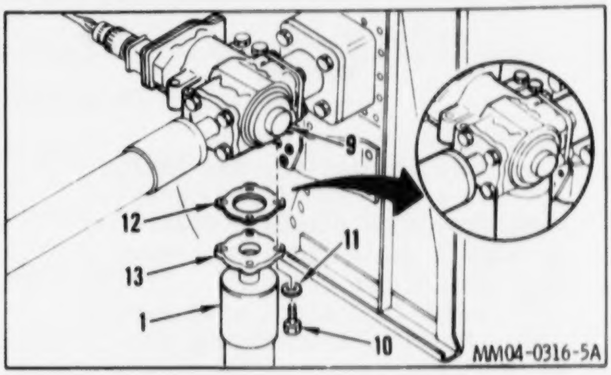
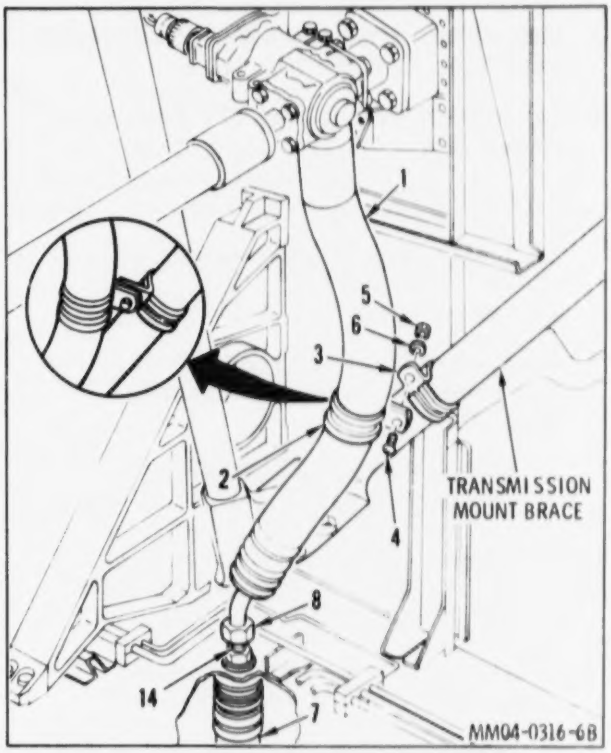
10-2-14. NO. 1 ENGINE UPPER FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-14

D. INSTALLATION



1. **Connect hose (1) to valve (9).**
   a. Lubricate new seal (12) on both sides. Use petrolatum (E16).
   b. Place seal (12) and hose flange (13) on flange of valve (9).
   c. Install four washers (11) and bolts (10).



2. **Connect hose (1) to hose (7).**
   a. Lubricate hose fitting (14). Use petrolatum (E16).
   b. One person hold hose (7) in ammunition bay. Use strap wrench.
   c. Second person connect hose nut (8) to hose (7) from transmission deck. Use 1-1/4 open-end wrench.
3. **Install clamp (2) on hose (1).**
   a. Aline clamp (2) screw hole with clamp (3) screw hole.
   b. Install screw (4) through screw holes in clamps (2) and (3).
   c. Hold screw (4).
   d. Install washer (6) and nut (5) on screw (4).
4. **Inspect (TI).**
5. **Perform fuel system priming operaion** (para 1-5-12).
6. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
7. **Install ammunition storage magazine** (TM 9-1090-208-23).
8. **Secure access panel L200** (para 2-2-2).

END OF TASK

10-2-15. APU FUEL INLET HOSE REPLACEMENT 10-2-15

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

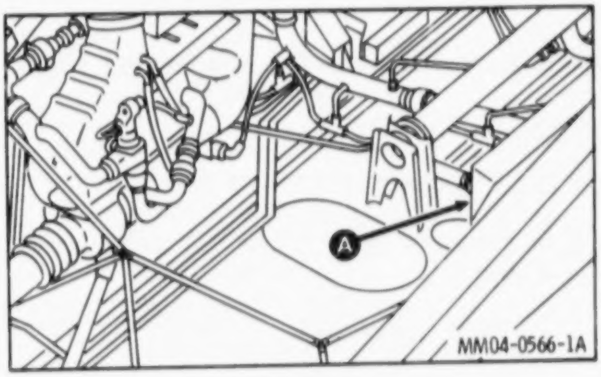
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access doors T250L, T250R, T290L, T290R, and L325 opened
15-2-2	APU enclosure removed

A. **REMOVAL**

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open FUEL BST circuit breaker on pilot center circuit breaker panel.**



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WARNING

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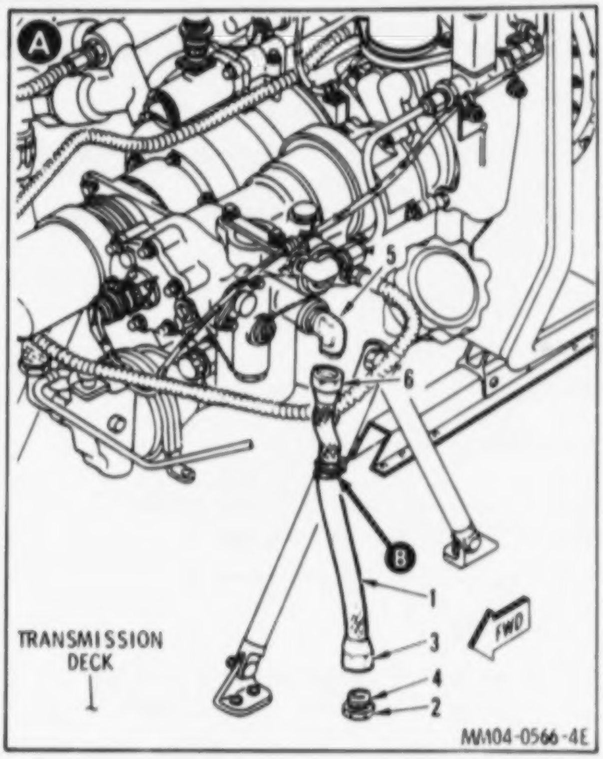

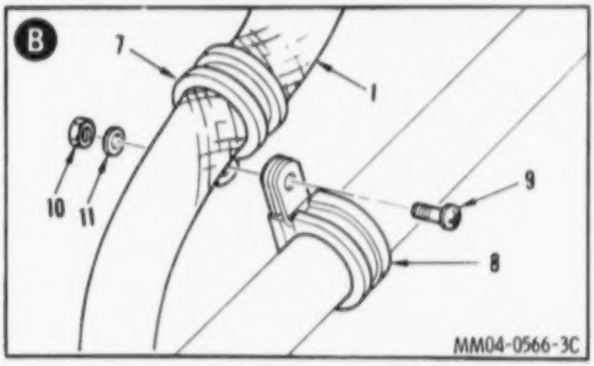

3. **Disconnect APU fuel inlet hose (1) at transmission deck.**
   a. Hold jam nut (2).
   b. Disconnect hose nut (3) from elbow (4).
4. **Disconnect hose (1) from elbow (5).**
   a. Hold elbow (5).
   b. Disconnect hose nut (6).
5. **Disconnect hose clamp (7) from truss clamp (8).**
   a. Hold screw (9).
   b. Remove nut (10) and washer (11).
   c. Remove screw (9) from clamps (7) and (8).
   d. Remove clamp (7) from hose (1).

B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

1. **Check hose for cuts, tears, breaks, and damaged nut threads** (para 10-2-1).
2. **Check jam nut and union for damaged threads** (para 10-2-1).

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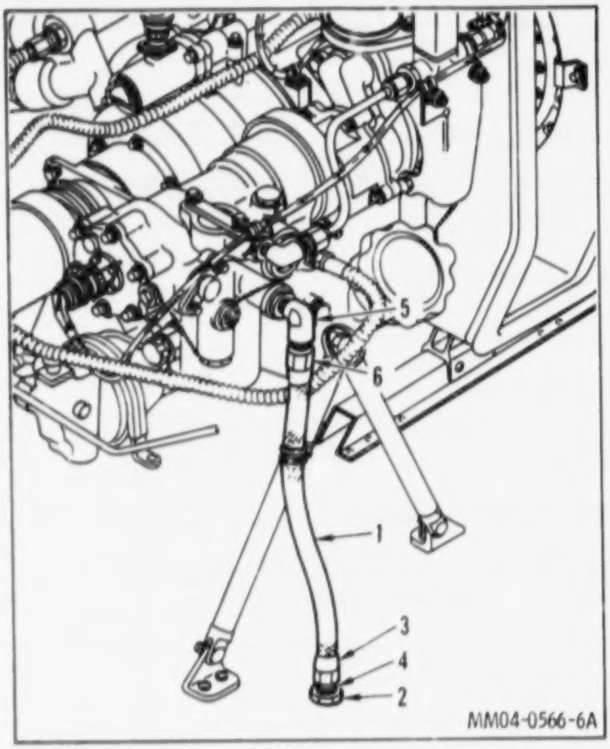
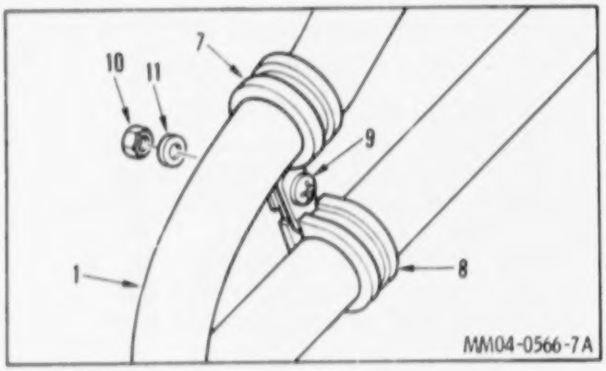
10-2-15. APU FUEL INLET HOSE REPLACEMENT (cont) 10-2-15

D. INSTALLATION

1. **Install APU fuel inlet hose (1).**
   - a. Lubricate threads of elbow (5). Use petrolatum (E16).
   - b. Hold elbow (5).
   - c. Install hose nut (6) on elbow (5).
   - d. Lubricate threads of elbow (4). Use petrolatum (E16).
   - e. Hold jam nut (2).
   - f. Install hose nut (3) on elbow (4).
2. **Install hose clamp (7) on APU fuel inlet hose (1).**
   - a. Aline clamp (7) screw hole with truss clamp (8).
   - b. Install screw (9) through screw holes in clamps (7) and (8).
   - c. Install washer (11) and nut (10) on screw (9).
3. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).
4. **Inspect (TI).**
5. **Install APU enclosure** (para 15-2-3).
6. **Secure access doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).





END OF TASK

10-2-16. FORWARD FUEL CELL UPPER VENT TUBE AND VENT ADAPTER REMOVAL/INSTALLATION 10-2-16

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (5)
	Packing with Retainer (10)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel L200 removed

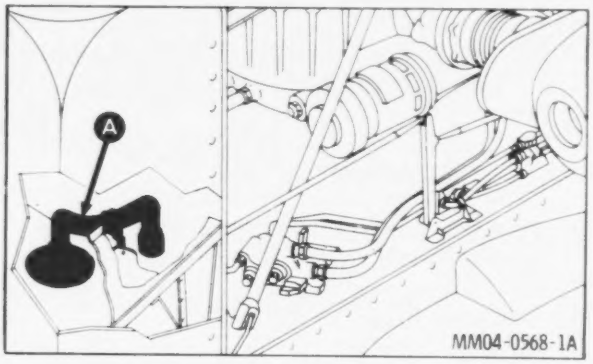
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



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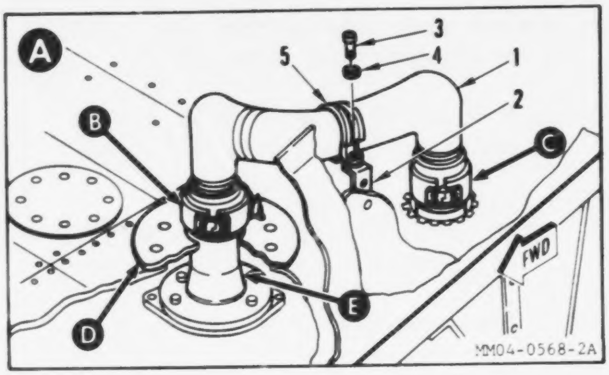
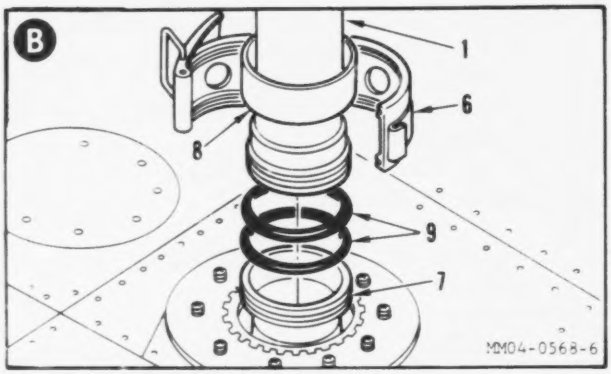
10-2-16. FORWARD FUEL CELL UPPER VENT TUBE AND VENT ADAPTER REMOVAL/INSTALLATION (cont) 10-2-16

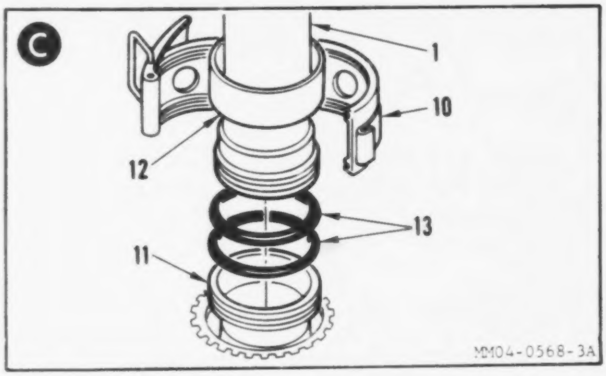
1. **Disconnect forward upper vent tube (1) from mounting bracket (2).**
   a. Remove screw (3) and washer (4).
   b. Remove clamp (5) from vent tube (1).



2. **Remove forward retainer (6) from vent tube (1) and fuel cell vent adapter (7).**
   a. Unlatch and remove retainer (6).
   b. Slide coupling (8) over tube (1).
   c. Remove and discard two packings (9) from tube (1) and adapter (7).
   d. Remove coupling (8) from tube (1).



3. **Remove aft retainer (10) from tube (1) and forward fuel cell vent tube (11).**
   a. Unlatch and remove retainer (10).
   b. Slide coupling (12) over tube (1).
   c. Remove and discard two packings (13) from tube (1) and tube (11).
   d. Remove coupling (12) from tube (1).



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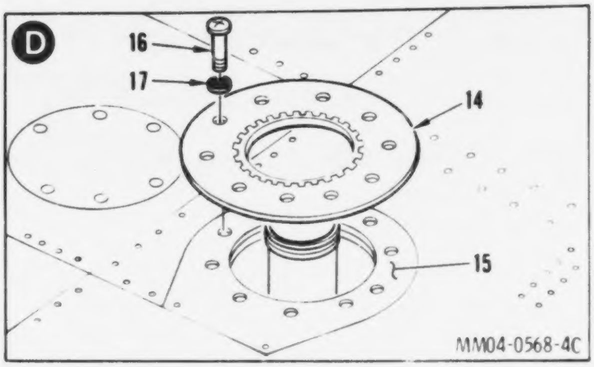
10-2-16. FORWARD FUEL CELL UPPER VENT TUBE AND VENT ADAPTER REMOVAL/INSTALLATION (cont) 10-2-16

4. **Remove vent tube access panel (14) from transmission deck (15).**

   a. Remove fillet seal from around panel (14) and deck (15).

   b. Remove 10 screws (16), 10 packings with retainer (17). Discard packings with retainer.

   c. Remove access panel (14).

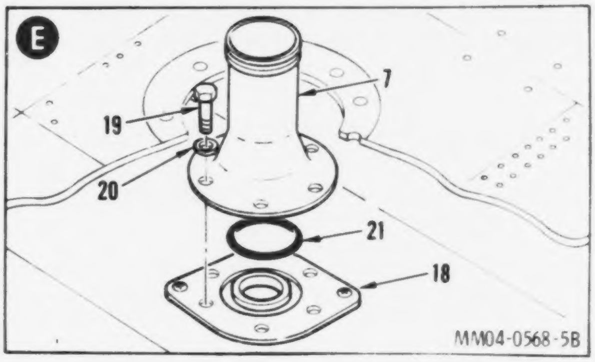


5. **Remove adapter (7) from forward fuel cell mounting pad (18).**

   a. Remove six bolts (19) and washers (20).

   b. Remove adapter (7).

   c. Remove and discard packing (21) from pad (18).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for dents, cracks, nicks, and damaged threads (para 10-2-1).

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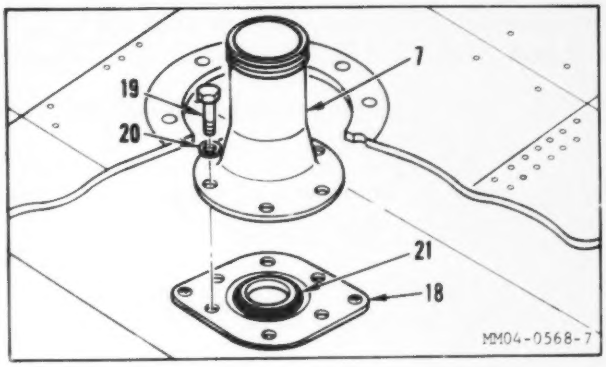
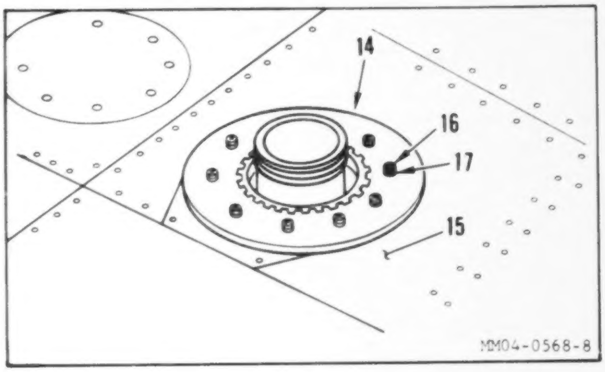
10-2-16. FORWARD FUEL CELL UPPER VENT TUBE AND VENT ADAPTER REMOVAL/INSTALLATION (cont) 10-2-16

D. INSTALLATION

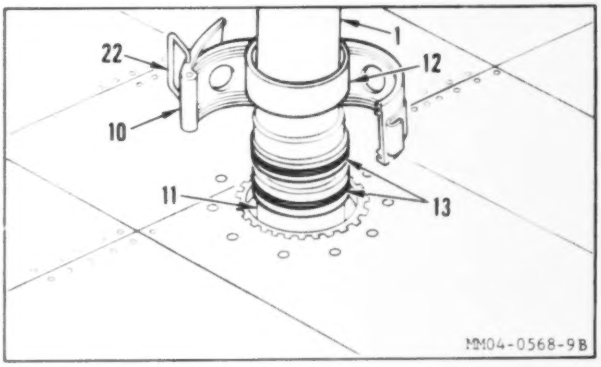
1. **Install adapter (7) on pad (18).**
   a. Lubricate new packing (21). Use petrolatum (E16).
   b. Install packing (21) on pad (18).
   c. Aline adapter (7) with holes in pad (18).
   d. Install six washers (20) and bolts (19).



2. **Install panel (14) on deck (15).**
   a. Lubricate 10 new packings with retainer (17). Use petrolatum (E16).
   b. Aline panel (14) with holes in deck.
   c. Install 10 new packings with retainers (17) and screws (16).



3. **Install retainer (10) on tube (1) and tube (11).**
   a. Lubricate two new packings (13). Use petrolatum (E16).
   b. Place packings (13) on tube (1) and tube (11).
   c. Slide and center coupling (12) over packings (13).
   d. Position and latch retainer (10) around coupling (12). Ensure that safety spring (22) is locked.



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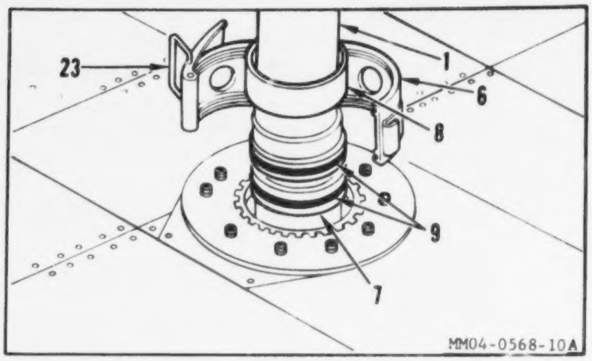
10-2-16. FORWARD FUEL CELL UPPER VENT TUBE AND VENT ADAPTER REMOVAL/INSTALLATION (cont) 10-2-16



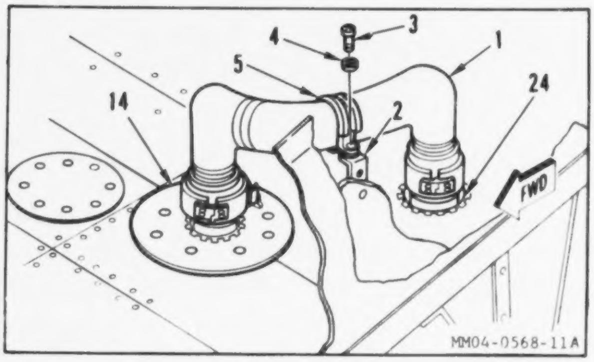
4. **Connect retainer (6) on tube (1) and adapter (7).**

   a. Lubricate two new packings (9). Use petrolatum (E16).

   b. Install packings (9) on tube (1) and adapter (7).

   c. Slide and center coupling (8) over packings (9).

   d. Position retainer (6) around coupling (8). Ensure safety spring (23) is locked.



5. **Connect vent tube (1) to bracket (2).**

   a. Place clamp (5) over vent tube (1).

   b. Install washer (4) and screw (3).

6. **Inspect (TI).**

7. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

8. **Apply sealing compound as fillet seal to access panel (14) and lower transmission deck vent tube opening (24) if needed** (TM 55-1500-204-25/1). Use sealing compound (E124).

9. **Secure access panel L200** (para 2-2-2).

END OF TASK

10-2-17. AFT FUEL CELL UPPER VENT TUBE ADAPTER REMOVAL/INSTALLATION 10-2-17

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1- & 1-1/8 Open-end (2)	5120-00-187-7133

Materials/Parts:

	Packing
	Packing with Retainer (8)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access doors T250L, T250R, T290L, T290R, and L325 opened
10-2-18	Aft fuel cell upper vent tube removed

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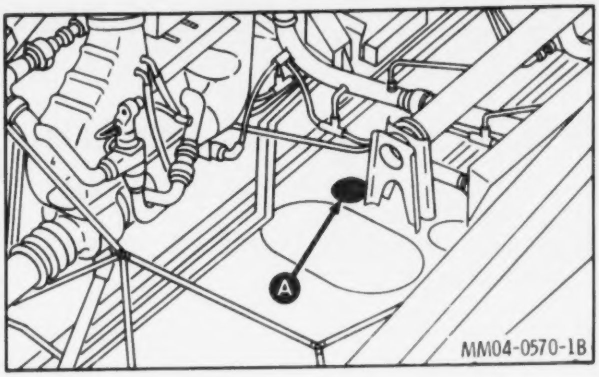
10-2-17. AFT FUEL CELL UPPER VENT TUBE ADAPTER REMOVAL/INSTALLATION (cont) 10-2-17

A. REMOVAL

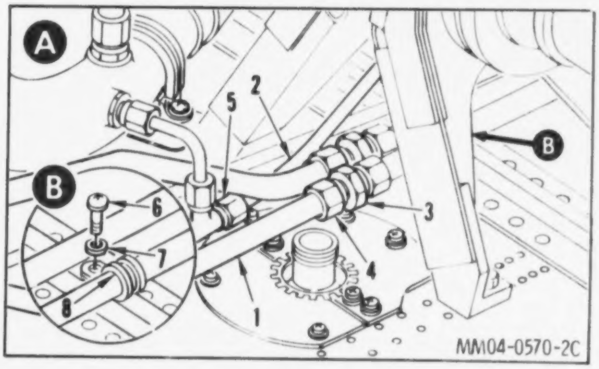


WARNING

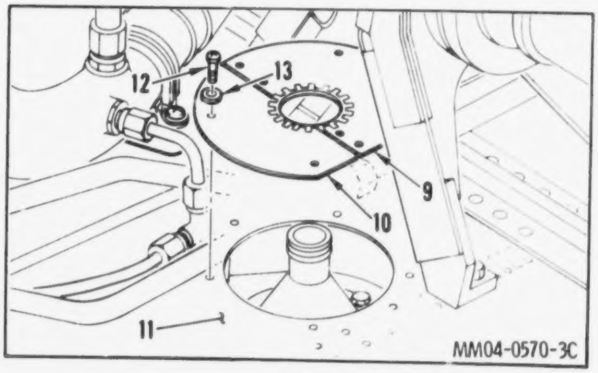
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect fire extinguishing tube (1) and air tube (2).**
   a. Remove tube nut (5).
   b. Hold union (3). Use 1-1/8 open-end wrench.
   c. Remove tube nut (4). Use 1-inch open-end wrench.
   d. Remove one screw (6) and washer (7) from clamp (8).
2. **Remove two vent tube adapter access covers (9) and (10) from transmission deck (11).**
   a. Remove sealing compound from around covers (9) and (10) and transmission deck (11).
   b. Remove eight screws (12) and packings with retainer (13). Discard packings (13).
   c. Remove covers (9) and (10) from transmission deck (11).



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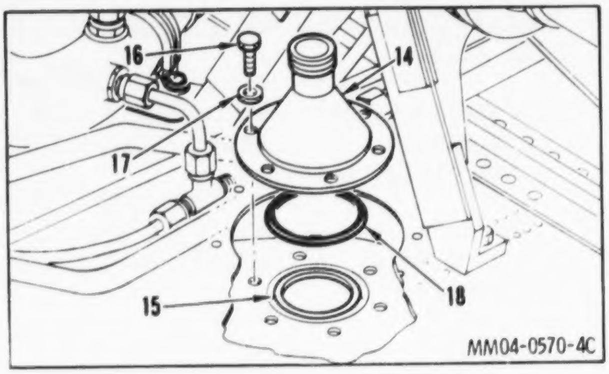
10-2-17. AFT FUEL CELL UPPER VENT TUBE ADAPTER REMOVAL/INSTALLATION (cont) 10-2-17



3. **Remove aft fuel cell upper vent tube adapter (14) from fuel cell mounting pad (15).**

   a. Remove six bolts (16) and washers (17).

   b. Remove adapter (14) from mounting pad (15).

   c. Remove and discard packing (18).

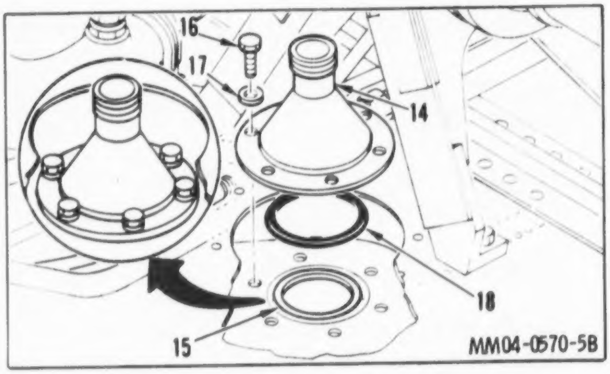
B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for dents, cracks, nicks, and damaged threads (para 10-2-1).

D. INSTALLATION



1. **Install adapter (14) on pad (15).**

   a. Lubricate new packing (18). Use petrolatum (E16).

   b. Install packing (18) on pad (15).

   c. Place adapter (14) on pad (15) and aline bolt holes.

   d. Install six washers (17) and six bolts (16).

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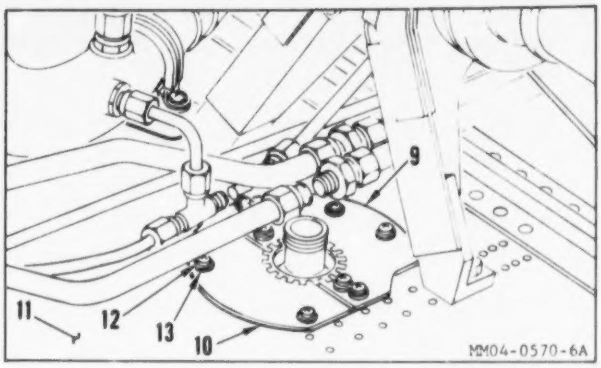
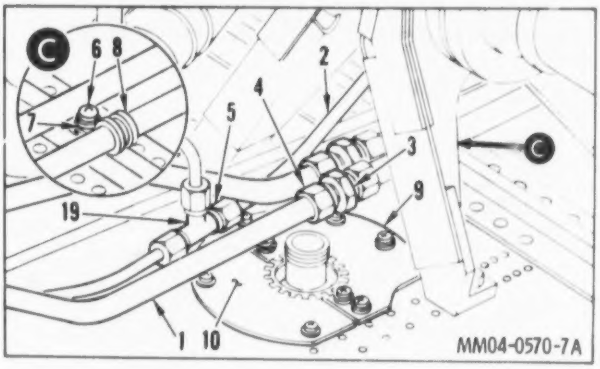
10-2-17. AFT FUEL CELL UPPER VENT TUBE ADAPTER REMOVAL/INSTALLATION (cont) 10-2-17



2. **Install covers (9) and (10) on deck (11).**
   a. Lubricate eight new packings with retainers (13). Use petrolatum (E16).
   b. Aline covers (9) and (10) with screw holes in transmission deck (11).
   c. Install eight packings with retainers (13) and screws (12).



3. **Install tube (1) and tube (2).**
   a. Hold union (3). Use 1-1/8 open-end wrench.
   b. Install tube nut (4) on union (3). Use 1-inch open-end wrench.
   c. Install tube nut (5) on fitting (19).
4. **Install aft fuel cell upper vent tube** (para 10-2-18).
5. **Install clamp (8).** Install screw (6) through washer (7) and clamp (8).
6. **Inspect (TI).**
7. **Apply sealing compound (E124) as necessary to fillet seal to access covers (9) and (10)** (TM 55-1500-204-25/1).
8. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
9. **Secure access doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).

END OF TASK

10-2-18. AFT FUEL CELL UPPER VENT TUBE REPLACEMENT 10-2-18

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (4)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

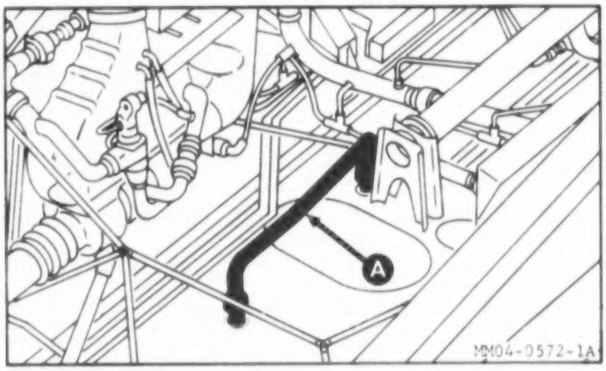
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled SPA method
2-2-2	Access doors T250L, T250R, T290L, T290R, and L325 opened
15-2-2	APU enclosure removed
2-3-10	Catwalk removed (as required)
6-2-6	Forward hanger bearing and support removed
6-2-8	No. 4 drive shaft removed



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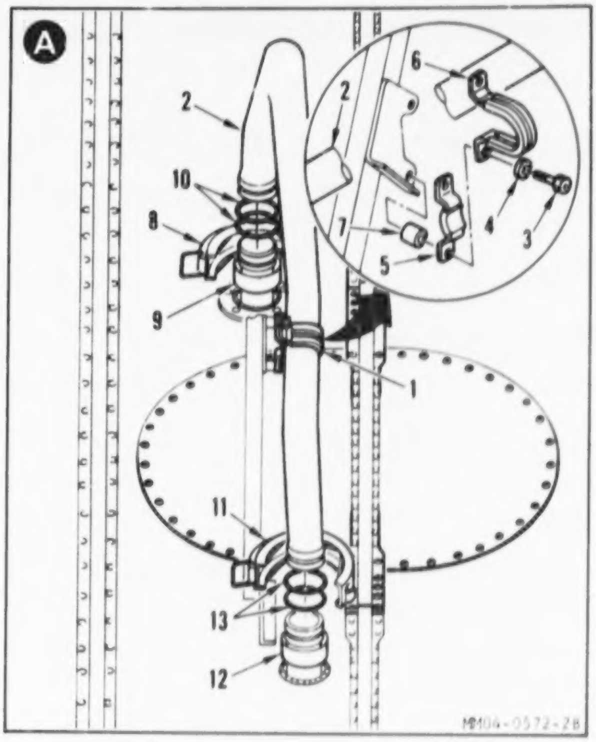
10-2-18. AFT FUEL CELL UPPER VENT TUBE REPLACEMENT (cont) 10-2-18

A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove clamp (1) from aft fuel cell upper vent tube (2).**
   - a. Remove two screws (3) and washers (4).
   - b. Remove clamp halves (5) and (6) and two spacers (7).
2. **Remove upper vent tube (2).**
   - a. Unlatch and remove retainer (8).
   - b. Slide coupling (9) down to clear tube (2).
   - c. Swing free end of tube (2) to the left.
   - d. Remove coupling (9) and two packings (10). Discard packings (10).
   - e. Unlatch and remove retainer (11).
   - f. Slide coupling (12) down to remove tube (2).
   - g. Remove coupling (12) and two packings (13) from lower end of tube (2). Discard packings (13).

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10-2-18. AFT FUEL CELL UPPER VENT TUBE REPLACEMENT (cont) 10-2-18

B. CLEANING

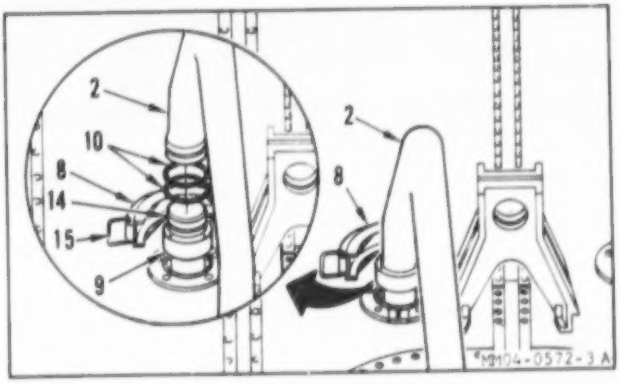
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for nicks, cracks, dents, and damaged threads (para 10-2-1).

D. INSTALLATION

1. Install tube (2).
   - a. Place coupling (9) on tube (14).
   - b. Lubricate two new packings (10). Use petrolatum (E16).
   - c. Install one packing (10) on tube (2).
   - d. Install one packing (10) on tube (14).
   - e. Slide and center coupling (9) over packings (10).
   - f. Install retainer (8) over coupling (9). Ensure safety spring (15) is locked.



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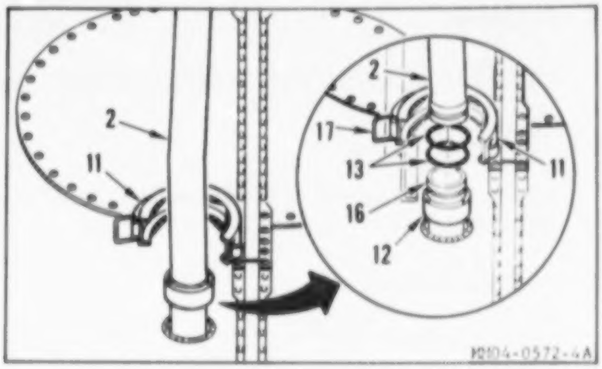
10-2-18. AFT FUEL CELL UPPER VENT TUBE REPLACEMENT (cont) 10-2-18



g. Place coupling (12) on adapter (16).

h. Lubricate two new packings (13). Use petrolatum (E16).

i. Install one packing (13) on tube (2).

j. Install one packing (13) on adapter (16).

k. Slide and center coupling (12) over packings (13).

l. Install retainer (11) over coupling (12). Ensure safety spring (17) is locked.

2. **Install clamp (1) on tube (2).**

    a. Position clamp halves (5) and (6) on tube (2).

    b. Aline two spacers (7) between inner clamp half (5) and bracket (18).

    c. Install two washers (4) and screws (3).

3. **Inspect** (TI).

4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

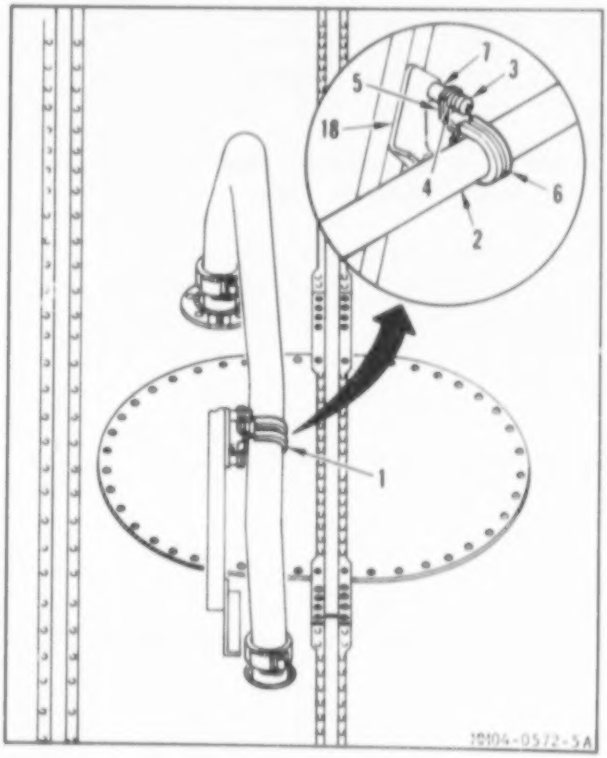
5. **Install forward hanger bearing and support** (para 6-2-6).

6. **Install No. 4 drive shaft** (para 6-2-8).

7. **Install catwalk** (para 2-3-10).

8. **Install APU enclosure** (para 15-2-3).

9. **Secure access doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).



END OF TASK

10-2-19. FORWARD FUEL CELL FORWARD ACCESS COVER REMOVAL/INSTALLATION 10-2-19

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. REPAIR E. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Crowfoot, Attachment, 1-3/16, 1/2 Drive	5120-00-229-2774
Wrench, Torque, 1/4 Drive	5120-00-585-8434

Materials/Parts:

	Packing with retainer
	Packing (3)
(E16)	Petrolatum
(E32)	Cloth, Lint-free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-24	Forward fuel cell forward fuel quantity transmitter removed

GO TO NEXT PAGE

10-2-19. FORWARD FUEL CELL FORWARD ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-19

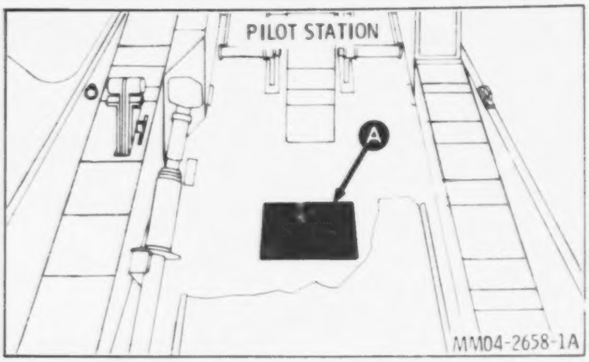
A. REMOVAL

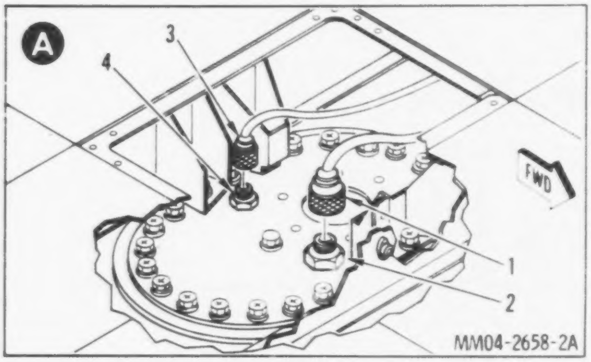
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

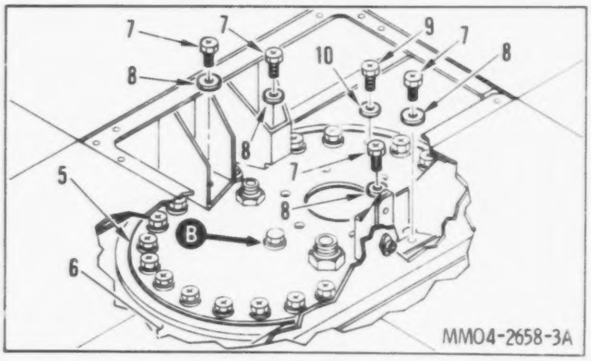
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

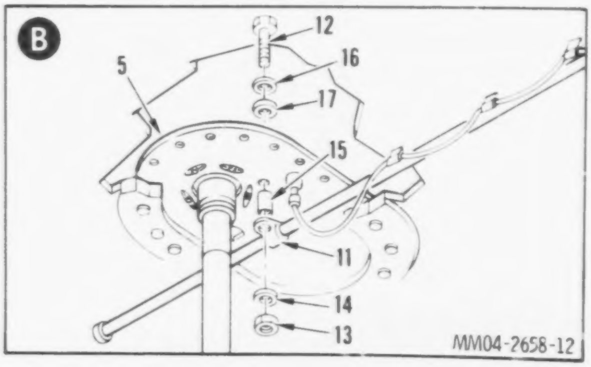




1. **Detach connector P942 (1) from connector A58J2 (2).**
2. **Detach connector P263 (3) from connector A58J1 (4).**
3. **Remove forward cover (5) from forward fuel cell (6).**
   a. Remove four bolts (7) and washers (8).
   b. Remove 20 bolts (9) and washers (10).
   c. Lift cover (5) from fuel cell (6) for access to clamp (11).



4. **Remove clamp (11) from cover (5).**
   a. Hold bolt (12).
   b. Remove nut (13), washer (14), clamp (11), and spacer (15).
   c. Remove bolt (12), packing with retainer (17), and washer (16). Discard packing (17).



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10-2-19. FORWARD FUEL CELL FORWARD ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-19

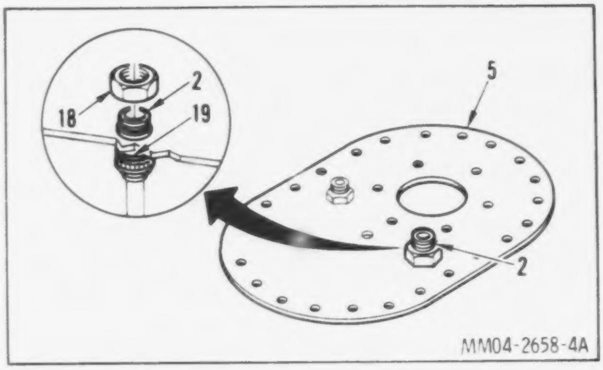
5. Remove connector (2) from cover (5).

a. Hold connector (2).

b. Remove nut (18) from connector (2).

c. Remove connector (2) from cover (5).

d. Remove and discard packing (19).



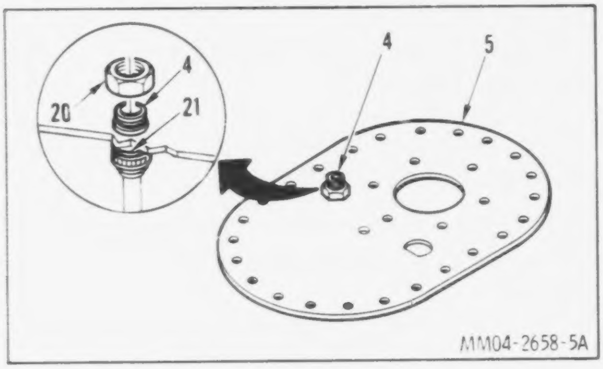
6. Remove connector (4) from cover (5).

a. Hold connector (4). Use 1-3/16, 1/2 drive crowfoot.

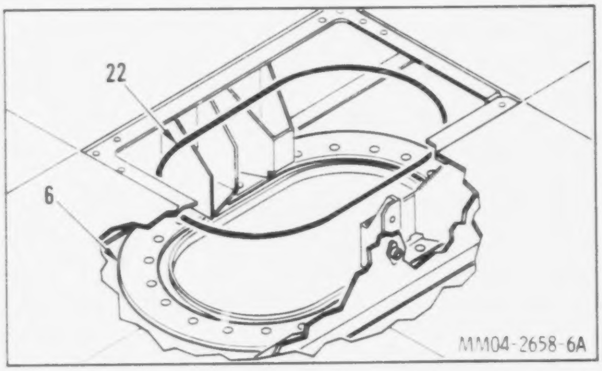
b. Remove nut (20) from connector (4).

c. Remove connector (4) from cover (5).

d. Remove and discard packing (21).



7. Remove and discard packing (22) from fuel cell (6).



B. CLEANING

Wipe electrical connectors P942, A58J2, P263, and A58J1, attaching parts, cover, and mounting area with a lint-free cloth. Use cloth (E32).

C. **INSPECTION**

1. **Check connectors and attaching parts, cover, and mounting area for cracks, nicks, gouges, damaged threads, and damaged helicoils.** None allowed (para 10-2-1).

2. **Check access cover for loose or missing nut plates.**

GO TO NEXT PAGE

10-2-19. FORWARD FUEL CELL FORWARD ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-19

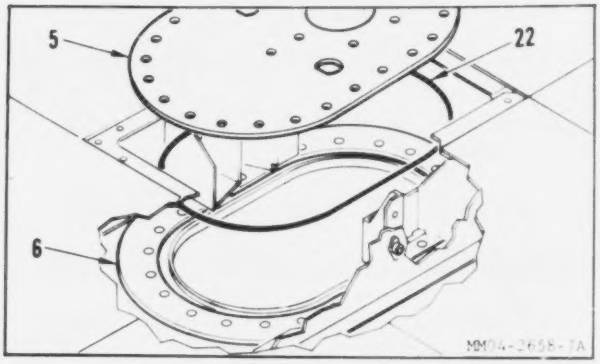
D. REPAIR

Repair cover (5) by replacing nut plates (TM 55-1500-204-25/1).

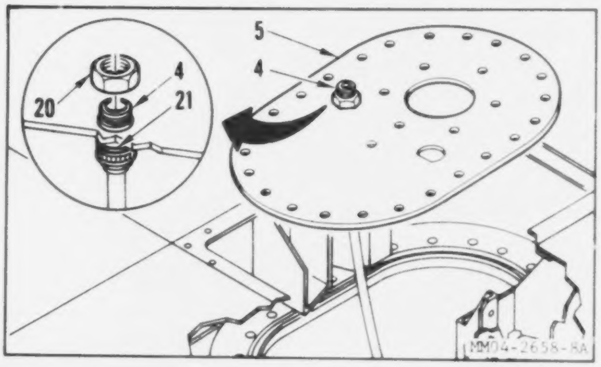
E. INSTALLATION

1. **Install new packing (22) in mounting pad of fuel cell (6).** Lubricate new packing (22). Use petrolatum (E16).

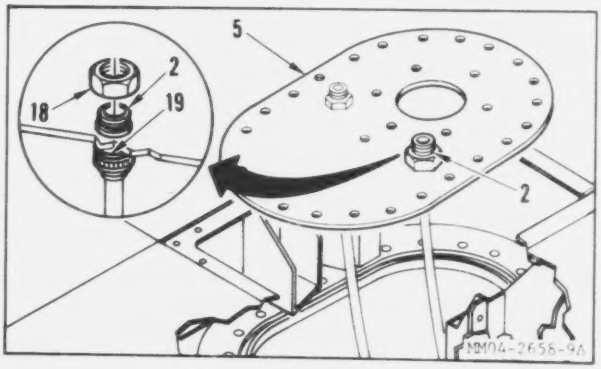
2. **Position cover (5) over mounting area of fuel cell (6).**



3. **Install connector A58J1 (4) on cover (5).**
   a. Lubricate new packing (21). Use petrolatum (E16).
   b. Push connector (4) through mounting hole in cover (5).
   c. Install packing (21) on connector (4).
   d. Hold connector (4). Use crowfoot.
   e. Install nut (20) on connector (4).



4. **Install connector A58J2 (2) on cover (5).**
   a. Lubricate new packing (19). Use petrolatum (E16).
   b. Push connector (2) through mounting hole in cover (5).
   c. Install packing (19) on connector (2).
   d. Hold connector (2).
   e. Install nut (18) on connector (2).



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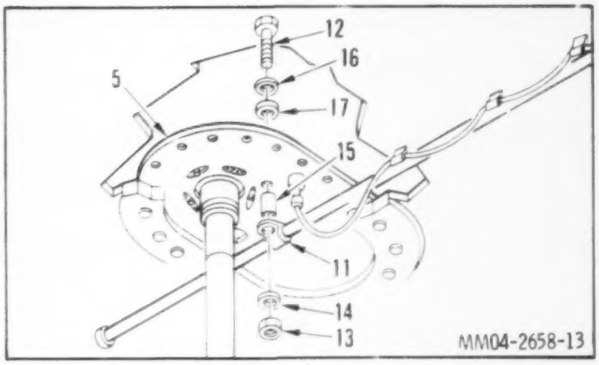
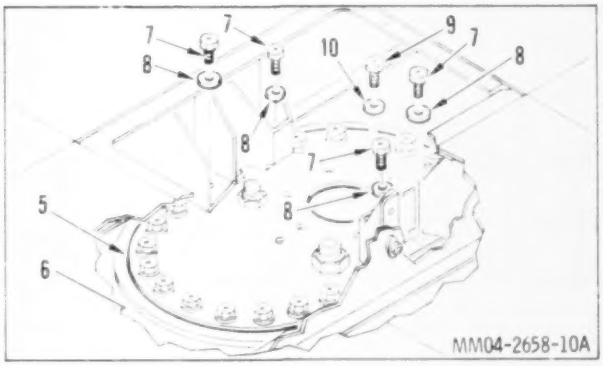
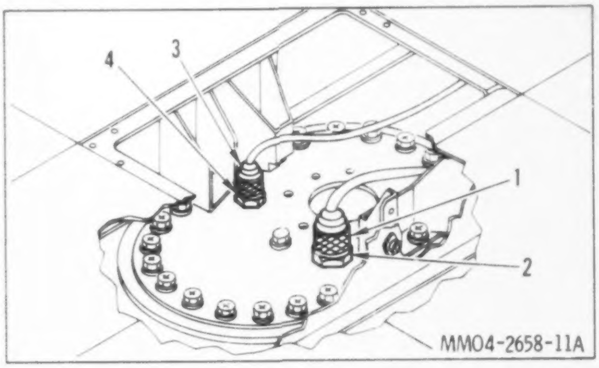
10-2-19. FORWARD FUEL CELL FORWARD ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-19

5. **Install clamp (11) on cover (5).**
   a. Lubricate new packing with retainer (17). Use petrolatum (E16).
   b. Install packing with retainer (17) and washer (16) on bolt (12).
   c. Install bolt (12) through cover (5).
   d. Install spacer (15), clamp (11), and washer (14).
   e. Hold bolt (12).
   f. Install nut (13).
6. **Install forward cover (5) on fuel cell (6).** Torque bolts (7) and (9) to **60 INCH-POUNDS.**
   a. Position cover (5) over mounting holes in fuel cell (6).
   b. Install four washers (8) and long bolts (7). Torque bolts (7) to **60 INCH-POUNDS.**
   c. Install 20 washers (10) and bolts (9). Torque bolts (9) to **60 INCH-POUNDS.**
7. **Attach electrical connector P263 (3) to connector A58J1 (4).**
8. **Attach electrical connector P942 (1) to connector A58J2 (2).**
9. **Install foward fuel cell forward fuel quantity transmitter** (para 10-2-24).
10. **Inspect (TI).**
11. **Fuel service helicopter** (para 1-5-5).







END OF TASK

10-2-20. FORWARD FUEL CELL AFT ACCESS PANEL AND AFT COVER REMOVAL/INSTALLATION 10-2-20

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, Torque, 1/4 Drive	5120-00-542-4489

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 9-1090-108-23

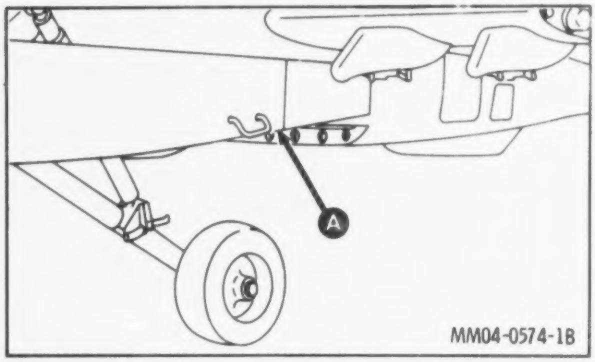
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
TM 9-1090-208-23	Carrier drive and ammunition magazine removed
10-2-2	Fuel system safety precausions observed
10-2-63	Forward fuel cell lower vent tube removed
10-2-64	Forward fuel cell vent lightning arrestor removed

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

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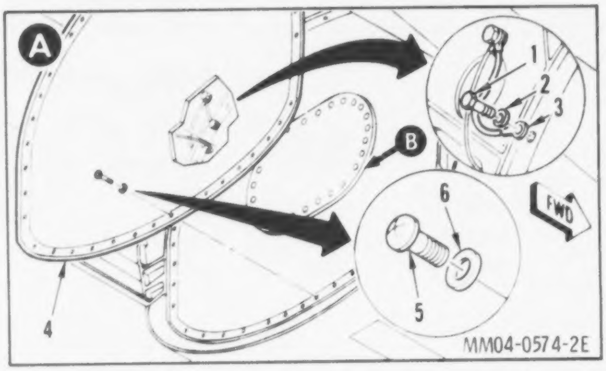
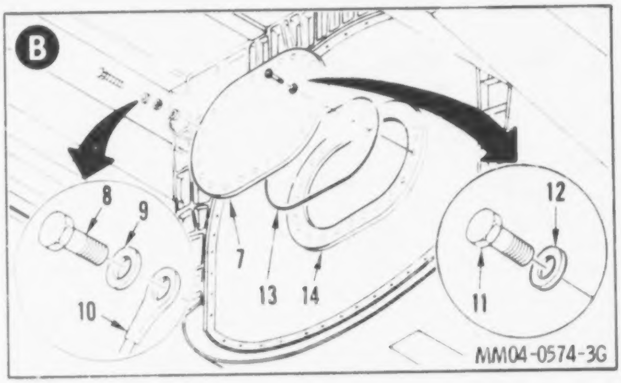
10-2-20. FORWARD FUEL CELL AFT ACCESS PANEL AND AFT COVER REMOVAL/INSTALLATION (cont) 10-2-20





1. **Remove forward fuel cell aft access panel (4).**
   a. Remove bolt (1), washer (2), and bonding strap (3).
   b. Remove 59 screws (5) and washers (6).
   c. Remove panel (4). Second person assist.
2. **Remove forward fuel cell aft cover (7).**
   a. Remove bolt (8), washer (9), and bonding strap (10).
   b. Remove 23 bolts (11) and washers (12).
   c. Remove cover (7).
   d. Remove and discard packing (13) from mounting pad (14).

B. CLEANING

Wipe all removed and attaching parts with a lint-free cloth (E32).

C. INSPECTION

Check aft cover mounting pad for damaged helicoil inserts, cracks, nicks, gouges, and damaged packing groove (para 10-2-1).

D. INSTALLATION

1. **Install cover (7).** Torque bolts (11) to **60 INCH-POUNDS.**
   a. Lubricate new packing (13). Use petrolatum (E16).
   b. Install packing (13) on pad (14).

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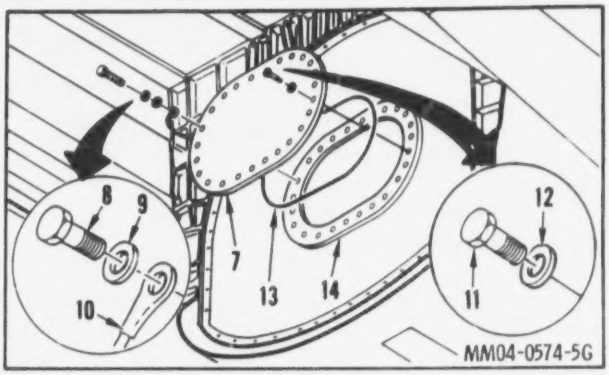
10-2-20. FORWARD FUEL CELL AFT ACCESS PANEL AND AFT COVER REMOVAL/INSTALLATION (cont) 10-2-20

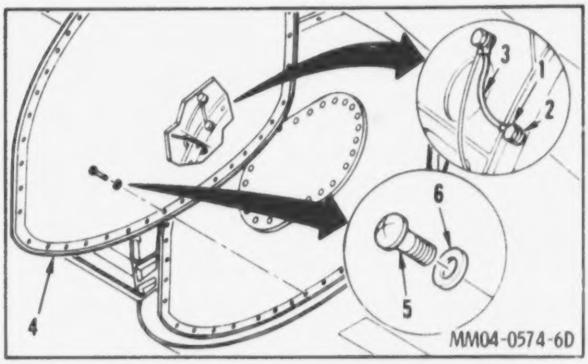


   c. Install cover (7) on pad (14). Aline bolt holes.

   d. Install 23 washers (12) and bolts (11). Torque bolts (11) to **60 INCH-POUNDS**.

   e. Install bolt (8) through washer (9) bonding strap (10), cover (7), and pad (14).

2. **Inspect (TI).**



3. **Install panel (4).**

   a. Place panel (4) over aft fuel cell and aline screw holes with frame. Second person assist.

   b. Install 59 washers (6) and screws (5).

   c. Install bolt (1) through washer (2), strap (3), and panel (4).

4. **Install forward fuel cell lower vent tube** (para 10-2-63).

5. **Install forward fuel cell lightning arrestor** (para 10-2-64).

6. **Inspect (TI).**

7. **Fuel service helicopter** (para 1-5-5).

NOTE

Before installing carrier drive and amunition magazine, insure that all operational checks have been performed.

8. **Install carrier drive and ammunition magazine** (TM 9-1090-208-23).

END OF TASK

10-2-21. FORWARD FUEL CELL CHECK/THERMAL RELIEF VALVE REMOVAL/INSTALLATION 10-2-21

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-1/16 & 1-1/4 Open-end	5120-00-187-7134
Crowfoot Attachment, 1-1/4, 3/8 Drive	5120-00-181-6759
Crowfoot Attachment 1-1/2, 3/8 Drive	5120-00-184-8412

Materials/Parts:

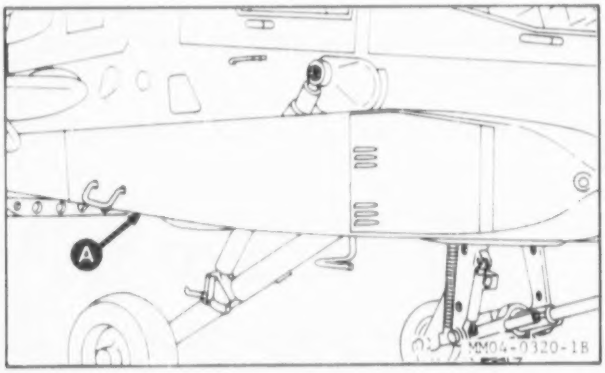
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed



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10-2-21. FORWARD FUEL CELL CHECK/THERMAL RELIEF VALVE REMOVAL/INSTALLATION (cont)

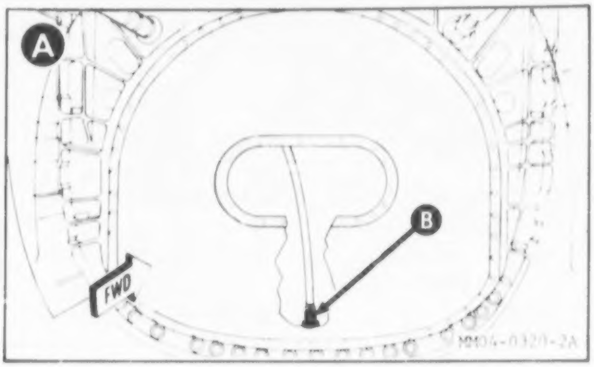
A. REMOVAL

WARNING

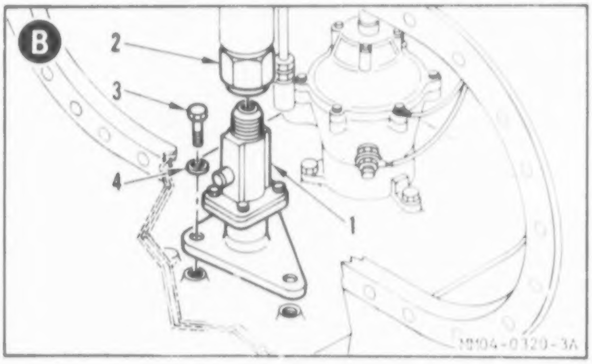
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Remove forward check/thermal relief valve (1).**
   a. Hold valve (1). Use 1-1/2 inch crowfoot.
   b. Remove forward fuel cell engine supply hose nut (2) from valve (1). Use 1-1/4 inch open-end wrench.
   c. Remove three bolts (3) and washers (4).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, dents, and damaged threads (para 10-2-1).

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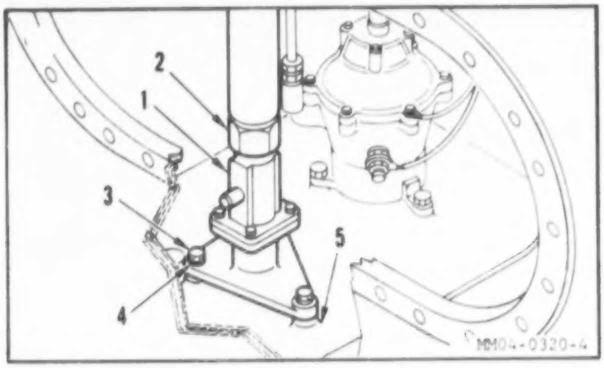
10-2-21. FORWARD FUEL CELL CHECK/THERMAL RELIEF VALVE REMOVAL/INSTALLATION (cont) 10-2-21

D. INSTALLATION



1. **Install valve (1).**
   a. Aline mounting holes of valve (1) with holes in mounting pad (5).
   b. Install three washers (4) and bolts (3).
   c. Lubricate threads of valve (1). Use petrolatum (E16).
   d. Hold valve (1). Use 1-1/2 inch open-end wrench.
   e. Install hose nut (2) on valve (1). Use 1-1/4, 3/8 drive crowfoot.
2. **Inspect (TI).**
3. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

END OF TASK

10-2-22. FORWARD FUEL CELL PILOT VALVE HOSE REPLACEMENT 10-2-22

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

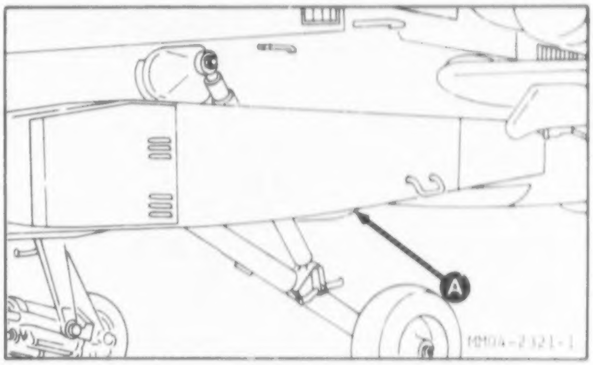
67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed



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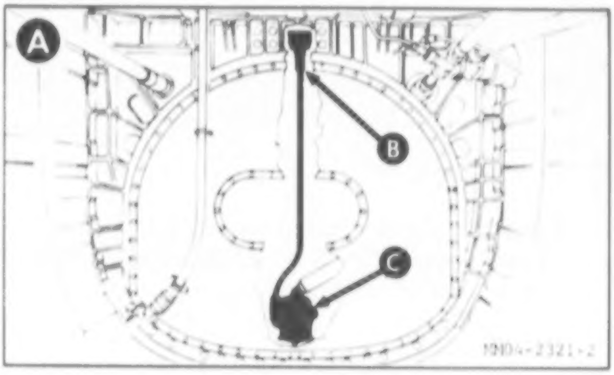
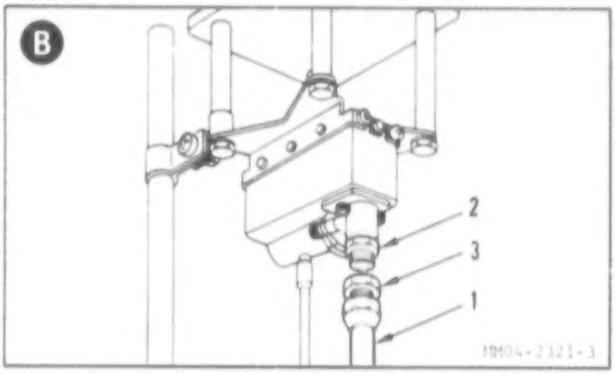
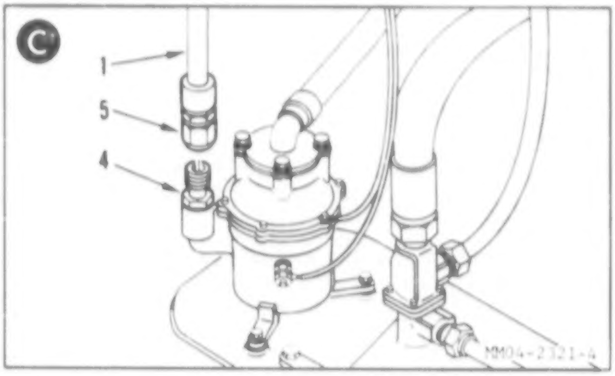
10-2-22. FORWARD FUEL CELL PILOT VALVE HOSE REPLACEMENT (cont) 10-2-22

A. REMOVAL







WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove forward fuel cell pilot valve hose (1).**

   a. Hold pilot valve union (2).

   b. Remove hose nut (3) from union (2).

   c. Hold shutoff valve union (4).

   d. Remove hose nut (5) from union (4).

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B. CLEANING

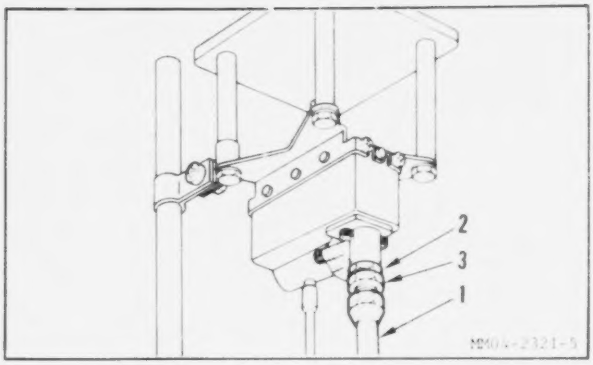
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

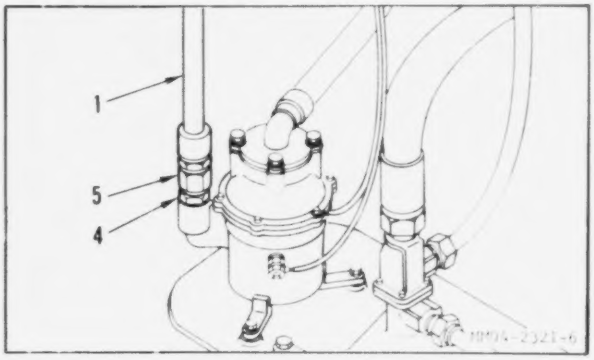
C. INSPECTION

Inspect pilot valve union and shutoff valve union for thread damage, cracks, and rounded wrench flats (para 10-2-1).

D. INSTALLATION

1. **Install hose (1).**
   - a. Lubricate union (2). Use petrolatum (E16).
   - b. Hold union (2).
   - c. Install nut (3) on union (2).
   - d. Lubricate union (4). Use petrolatum (E16).
   - e. Hold union (4).
   - f. Install nut (5) on union (4).
2. **Inspect** (TI).
3. **Install forward fuel cell aft access panel and cover** (para 10-2-20).
4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).





END OF TASK

10-2-23. FORWARD FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION 10-2-23

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-3-12	Pilot seat removed
10-2-20	Forward fuel cell aft access panel and aft cover removed

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A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

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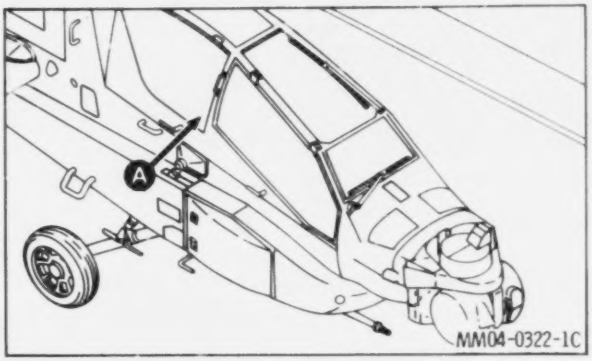
10-2-23. FORWARD FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-23

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

2. **Remove access panel (1).**
   a. Remove 28 screws (2) and washers (3).
   b. Remove panel (1).
3. **Detach connector P942 (4) from connector A58J2 (5).**
   a. One person hold connector (5) in fuel cell.
   b. Second person remove nut (6) from connector (5) on panel (18).
   c. Push connector (5) into fuel cell.
   d. Remove and discard packing (7).
4. **Remove pilot valve electrical harness (8) from three support straps (9) in fuel cell.**



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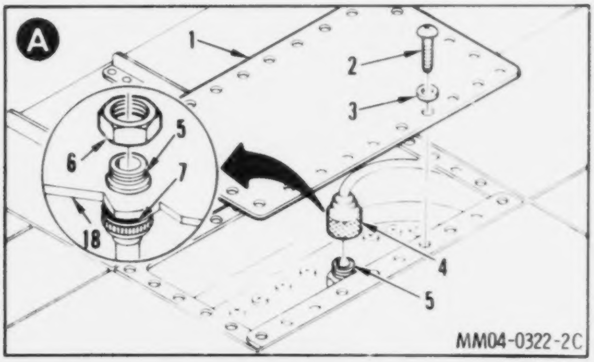

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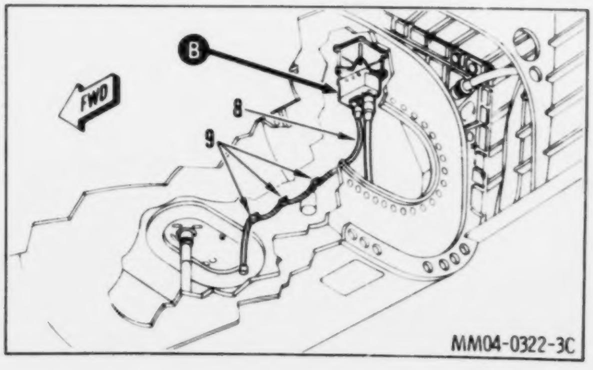

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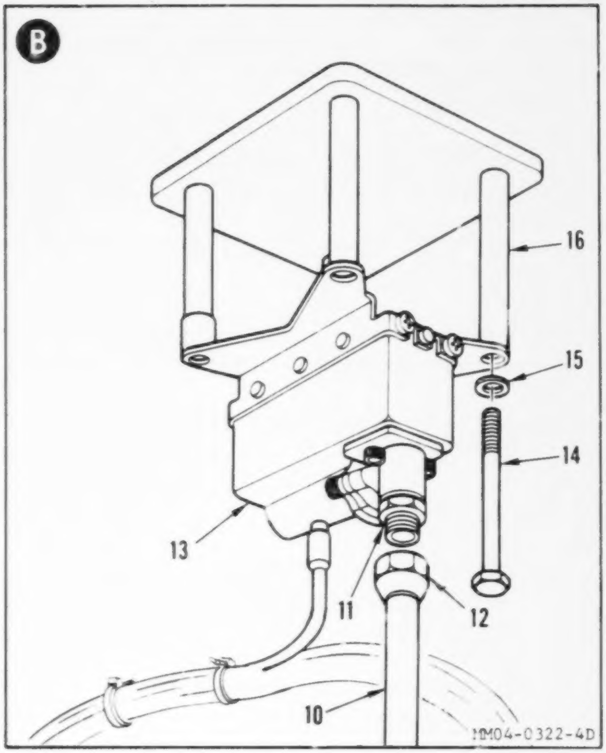
10-2-23. FORWARD FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-23

5. **Disconnect pilot valve hose (10).**

   a. Hold union (11).

   b. Remove hose nut (12) from union (11).

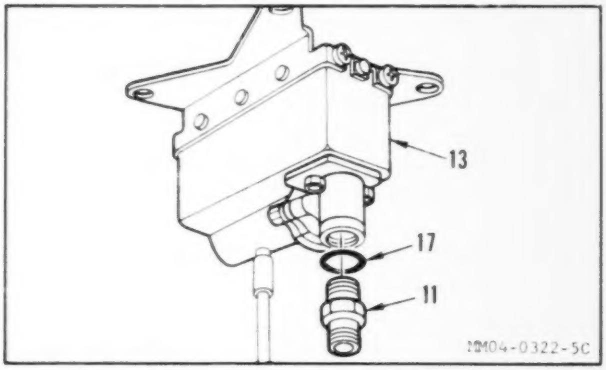
6. **Remove pilot valve (13).** Remove four bolts (14), washers (15), pilot valve(13) and four spacers (16).



7. **Remove union (11) from pilot valve (13).**

   a. Remove union (11).

   b. Remove and discard packing (17).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth. Use cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks, gouges, and dents (para 10-2-1).

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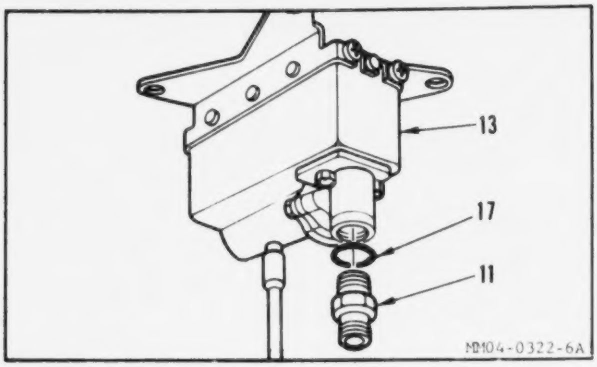
10-2-23. FORWARD FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-23

D. INSTALLATION



1. **Install union (11) in valve (13).**

   a. Lubricate new packing (17). Use petrolatum (E16).

   b. Install packing (17) on union (11).

   c. Lubricate union (11) threads. Use petrolatum (E16).

   d. Install union (11) in valve (13).

2. **Install valve (13).**

   a. Install four washers (15) and mounting bolts (14) through mounting holes in valve (13).

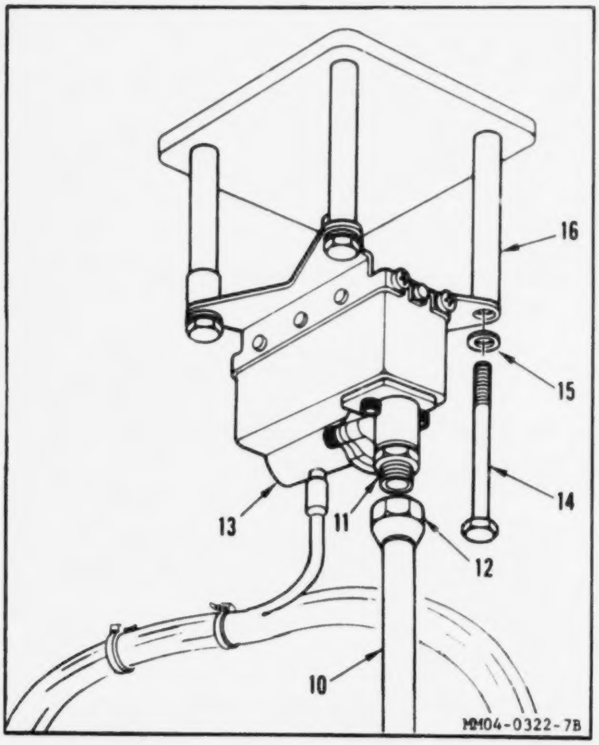
   b. Install four spacers (16) on four bolts (14).

   c. Tighten four bolts (14).

3. **Connect pilot valve hose (10) to pilot valve (13).**

   a. Lubricate threads of union (11). Use petrolatum (E16).

   b. Hold union (11). Install hose nut (12).



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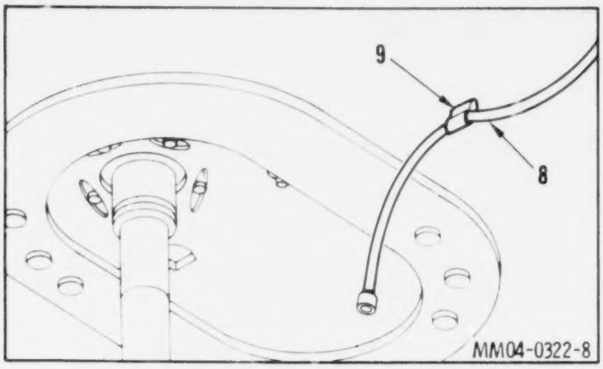
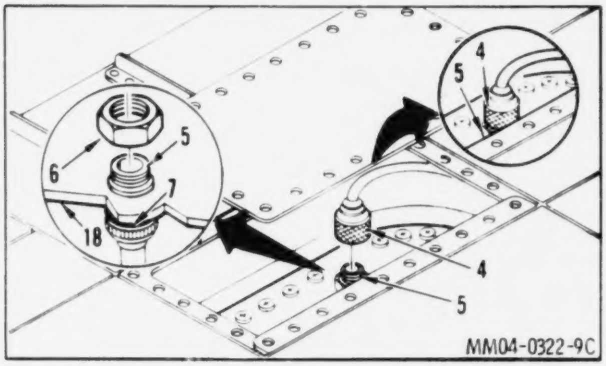
10-2-23. FORWARD FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-23

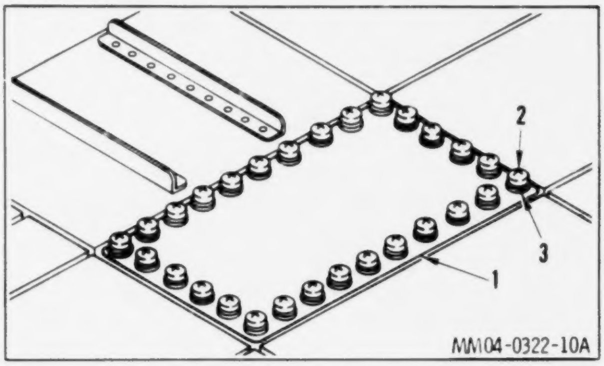
4. **Install harness (8) through straps (9).**



5. **Install connector A58J2 (5).**
   a. One person lubricate new packing (7) in fuel cell. Use petrolatum (E16).
   b. Install packing (7) on connector (5) in fuel cell.
   c. One person insert connector (5) in fuel cell through opening in panel (18).
   d. Hold connector (5).
   e. Second person install nut (6) on connector (5) in pilot station.



6. **Attach connector P942 (4) to connector A58J2 (5).**
7. **Inspect (TI).**
8. **Install access panel (1).** Install 28 washers (3) and screws (2).
9. **Secure forward fuel cell aft access panel and aft cover** (para 10-2-20).
10. **Perform refueling/defueling operational check** (TM 55-1520-238-T).
11. **Install pilot seat** (para 2-3-12).



END OF TASK

10-2-24. FORWARD FUEL CELL FORWARD FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION 10-2-24

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (6)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

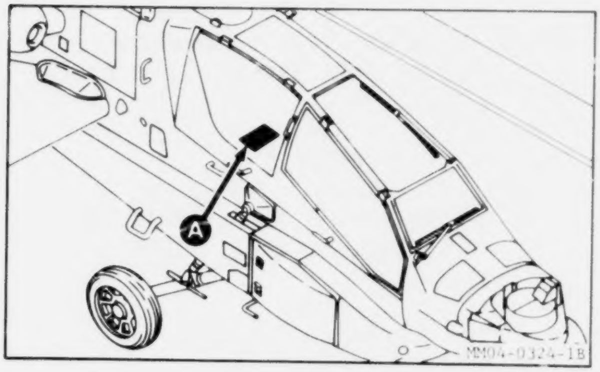
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-3-12	Pilot seat removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

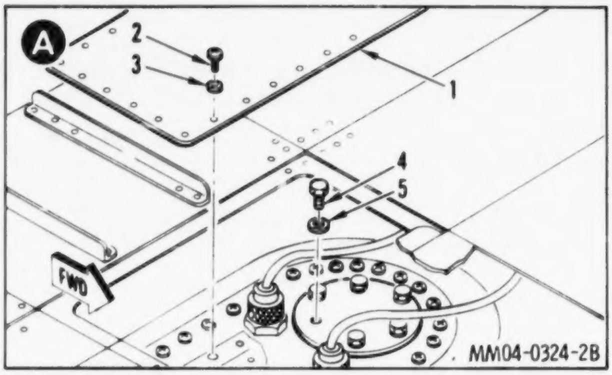
GO TO NEXT PAGE

10-2-24. FORWARD FUEL CELL FORWARD FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-24

2. Remove forward fuel cell access panel (1) in pilot station.

a. Remove 28 screws (2) and washers (3).

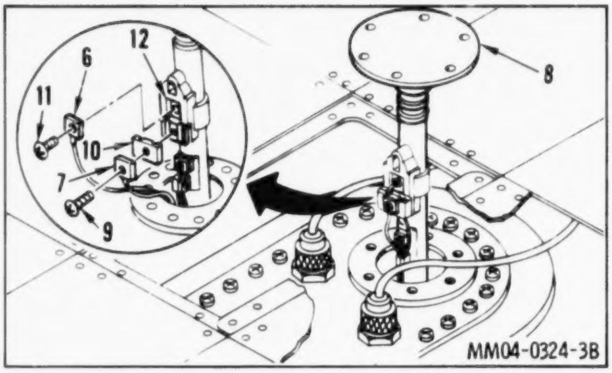
b. Remove access panel (1).



3. Remove fuel quantity transmitter mounting bolts (4).

a. Remove six bolts (4) and packings with retainers (5).

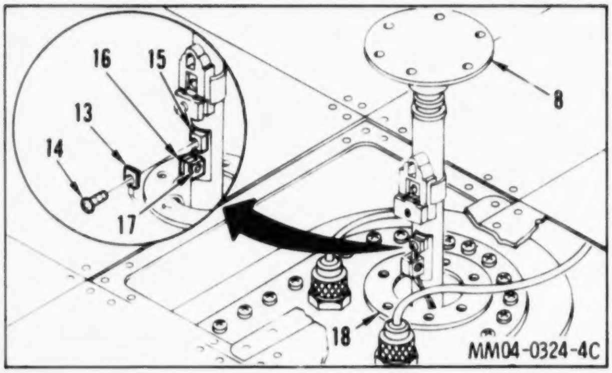
b. Remove and discard six packings with retainers (5) from bolts (4).



4. Detach upper electrical leads (6) and (7) on fuel cell forward fuel quantity transmitter (8).

a. Remove screw (9), black lead (7), and clamp (10) from transmitter (8).

b. Remove screw (11) and white lead (6) from Hi Z terminal (2).



5. Detach lower electrical red lead (13) from fuel quantity transmitter (8).

a. Remove screw (14) from Lo Z terminal (15).

b. Remove red lead (13) from retainer (16). Loosen screw (17).

6. Remove fuel quantity transmitter (8) from fuel cell.

a. Lift transmitter (8) straight up out of fuel cell.

b. Remove and discard seal (18).

GO TO NEXT PAGE

10-2-24. FORWARD FUEL CELL FORWARD FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-24

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

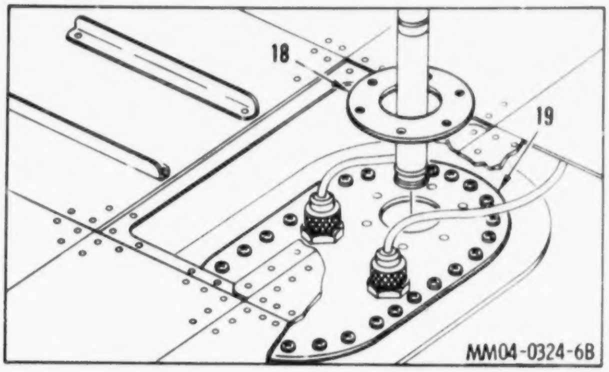
Check all removed and attaching parts for damage (para 10-2-1).

D. INSTALLATION

1. **Install transmitter seal (18) on forward cover (19).**

   a. Lubricate new seal on both sides. Use petrolatum (E16).

   b. Place seal (18) on cover (19).



2. **Attach lower fuel quantity transmitter (8) electrical lead (13).**

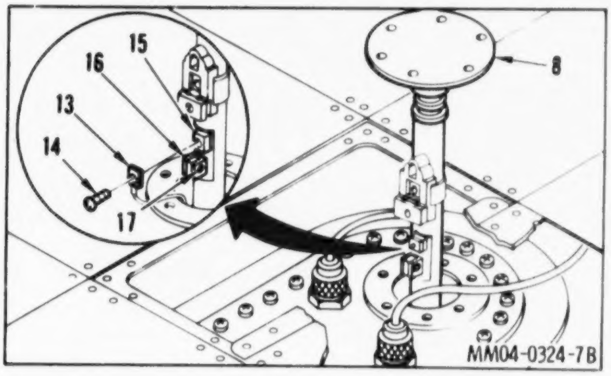
NOTE

Transmitter wire terminals must face left side of fuel cell.

   a. Install screw (14) through red lead (13) into Lo Z terminal (15).

   b. Place lead (13) in retainer (16).

   c. Tighten screw (17).



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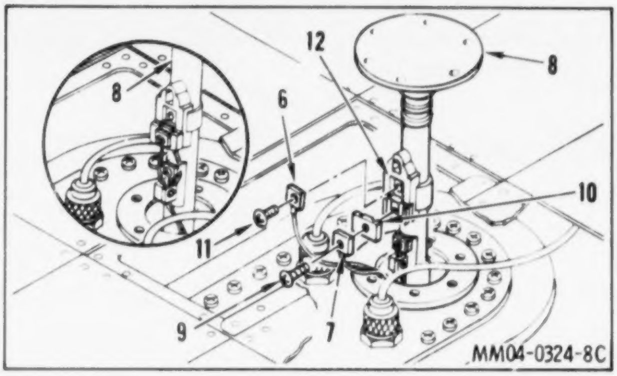
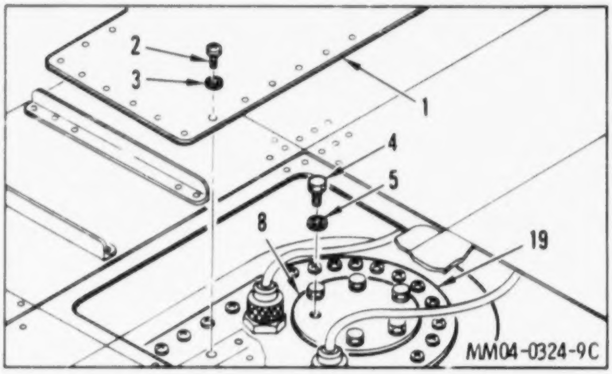
10-2-24. FORWARD FUEL CELL FORWARD FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-24

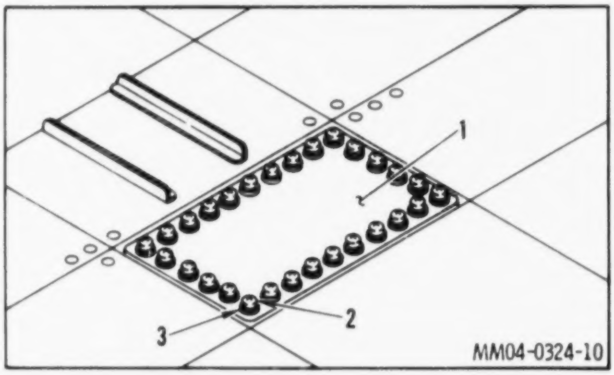
3. **Attach transmitter (8) electrical leads (6) and (7).**
   - a. Install screw (11) through white lead (6) into Hi Z terminal (12).
   - b. Position clamp (10) over white lead (6) .
   - c. Install screw (9) through black lead (7) into clamp (10).



4. **Install transmitter (8) in fuel cell.**
   - a. Aline transmitter mounting holes (8) with holes in cover (19).
   - b. Lubricate six new packings with retainers (5). Use petrolatum (E16).
   - c. Install six new packings with retainers (5) and six bolts (4).



5. **Inspect (TI).**
6. **Install panel (1) in pilot station.**
   - a. Position panel (1).
   - b. Install 28 washers (3) and screws (2).



7. **Inspect (TI).**
8. **Fuel service helicopter** (para 1-5-5).
9. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).
10. **Install pilot seat** (para 2-3-12).

END OF TASK

10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION 10-2-25

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. ADJUSTMENT E. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Conditions:
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed

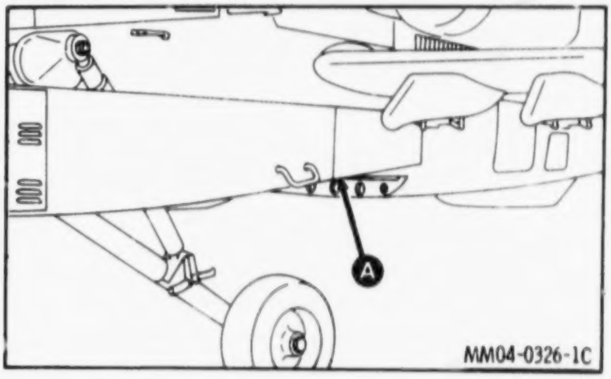
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



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10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-25

1. **Disconnect white lead (1) and black lead (2) from fuel quantity transmitter (3).**

    a. Remove screw (4), black lead (2), and clamp (5) from transmitter (3).

    b. Remove screw (6) and white lead (1) from Hi Z terminal (7).

    c. Loosen two screws (8).

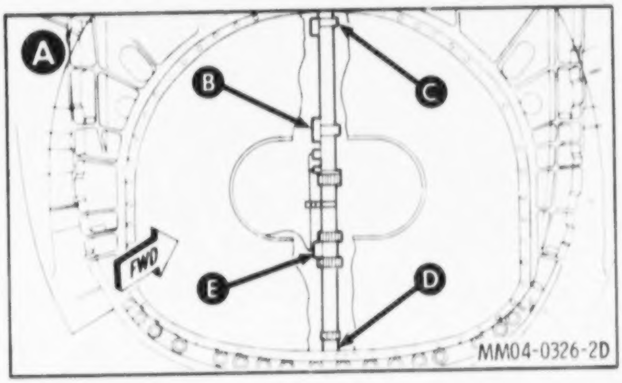
    d. Remove white leads (1) from upper retainers (9).

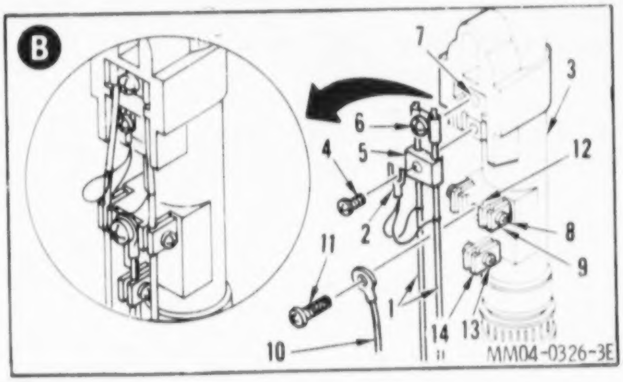
2. **Disconnect red lead (10) from fuel quantity transmitter (3).**

    a. Remove screw (11) and red lead (10) from Lo Z terminal (12).

    b. Loosen screw (13).

    c. Remove red lead (10) from lower retainer (14).





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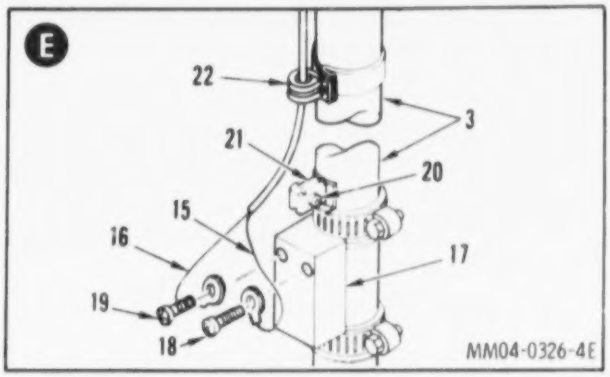
10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont)

3. **Disconnect orange lead (15), and yellow ground lead (16) from low level sensor (17).**
    a. Remove screw (18) and orange lead (15) from sensor (17).
    b. Remove screw (19) and yellow lead (16) from sensor (17).
    c. Loosen screw (20).
    d. Remove leads (15) and (16) from retainer (21).
4. **Detach clamp (22) from transmitter (3).**
5. **Remove two bolts (23) and washers (24) from lower mounting flange (25).**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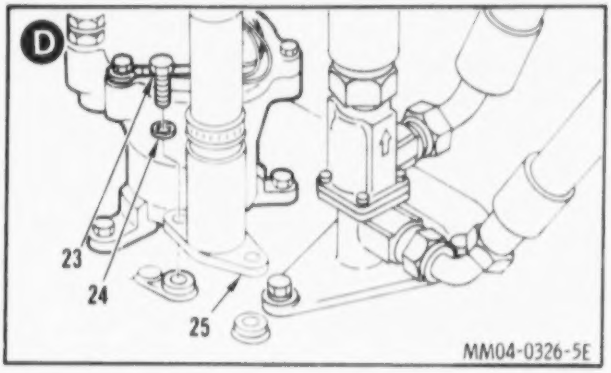
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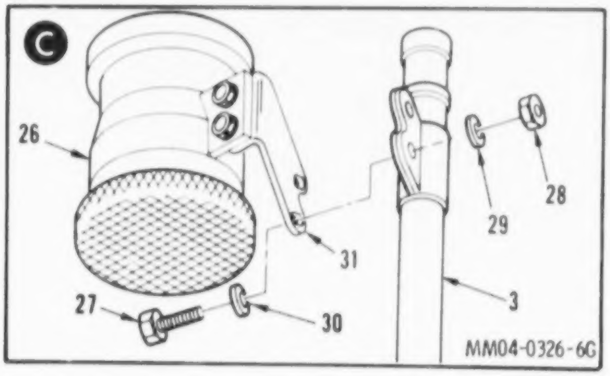
6. **Remove aft fuel quantity transmitter (3) from pressure relief valve (26).**
    a. Hold two upper mounting bolts (27).
    b. Remove two nuts (28) and washers (29).
    c. Remove two bolts (27) and washers (30) from mounting bracket (31).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10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-25

B. CLEANING

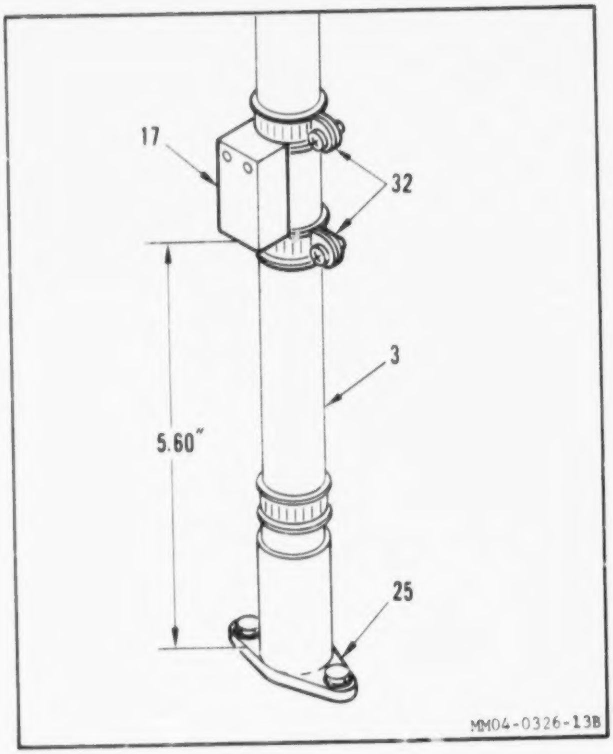
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks. None allowed.

D. ADJUSTMENT

1. Adjust transmitter (3) to 5.60 inches.
    a. Loosen two clamps (35).
    b. Measure from lower mounting flange (25) to bottom of low fuel level sensor (17).
    c. Move sensor (17) to 5.60 inches from top of flange (25).
    d. Tighten two clamps (32).



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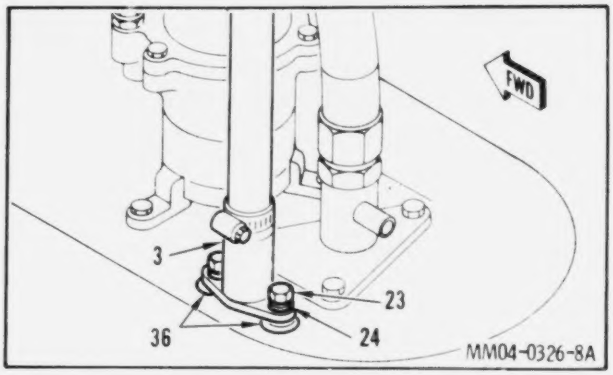
10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-25

E. INSTALLATION

1. **Install transmitter (3) on fuel cell flange (36).**
   - a. Place transmitter (3) in fuel cell with electrical connectors facing left side of helicopter.
   - b. Aline transmitter (3) with fuel cell flange (33).
   - c. Install two washers (24) and bolts (23).
2. **Install two mounting bolts (27) on support bracket (31).** Install two bolts (27), two washers (30), two washers (29), and two nuts (28).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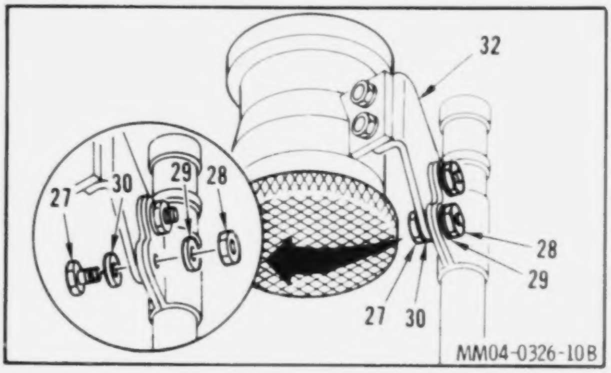
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10-2-25. FORWARD FUEL CELL AFT FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-25

3. **Position leads (16) and (15) in clamp (22).** Install clamp (22) on transmitter (3).

4. **Connect orange lead (15) and yellow ground lead (16) to sensor (17).**

   a. Connect yellow lead (16) and screw (19) to terminal (34).

   b. Connect orange lead (15) and screw (18) to terminal (35).

5. **Connect red Lo Z lead (10) to terminal (12).**

   a. Connect leads (10) and screw (11) to terminal (12).

   b. Place lead (10) in lower retainer (14).

   c. Tighten screw (13).

6. **Connect white Hi Z leads (1) and black lead (2) on transmitter (3).**

   a. Connect lead (1) and screw (6) to terminal (7).

   b. Place leads (1) in retainers (9).

   c. Tighten two screws (8).

   d. Place clamp (5) over white leads (1).

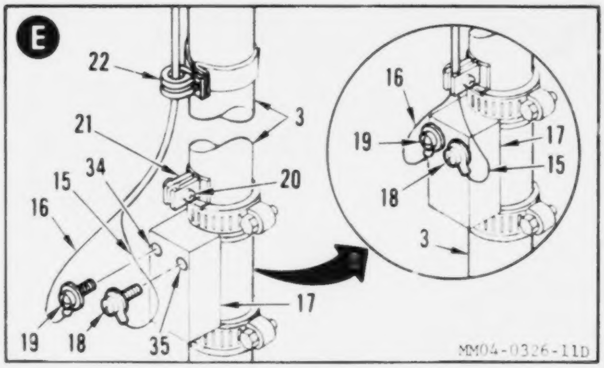
   e. Connect black lead (2) to clamp (5) with screw (4).

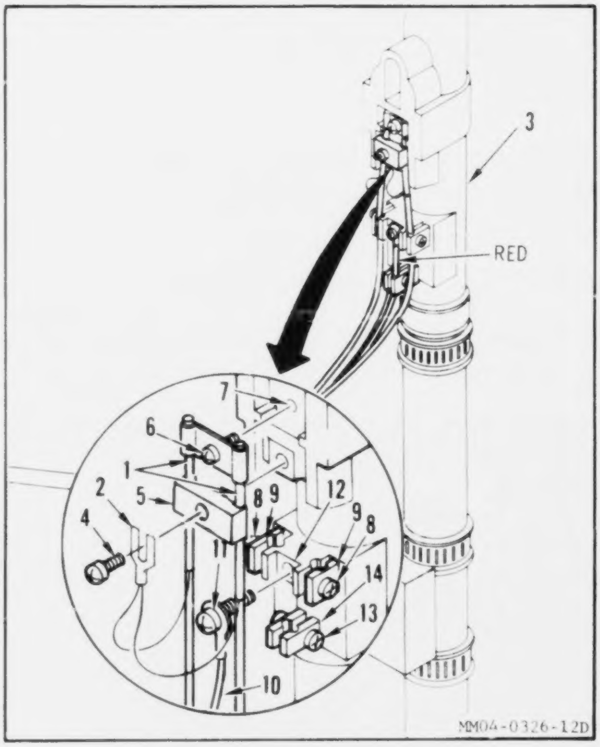
7. **Inspect (TI).**

8. **Install foward fuel cell aft access panel and aft cover** (para 10-2-20).

9. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).

END OF TASK





10-2-26. FORWARD FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-26

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

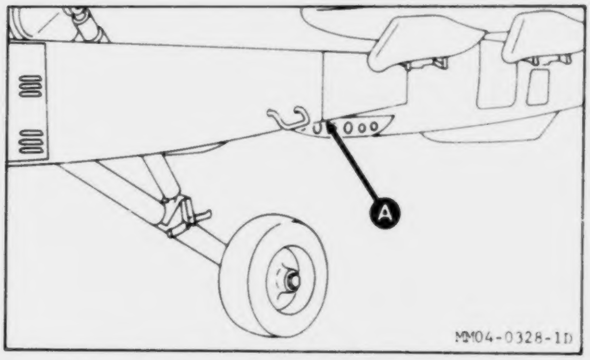
Equipment Conditions:

Ref	Conditions:
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL FILL circuit breaker on pilot center circuit breaker panel.**



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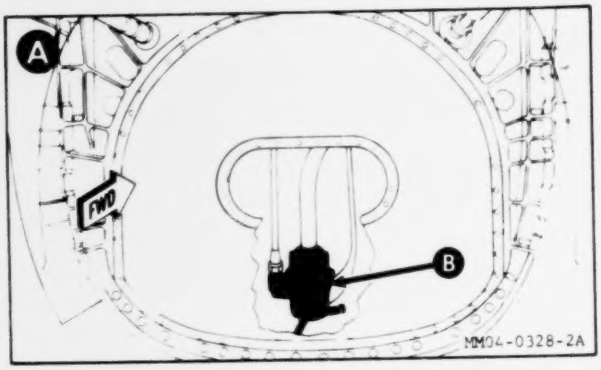
10-2-26. FORWARD FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-26



WARNING

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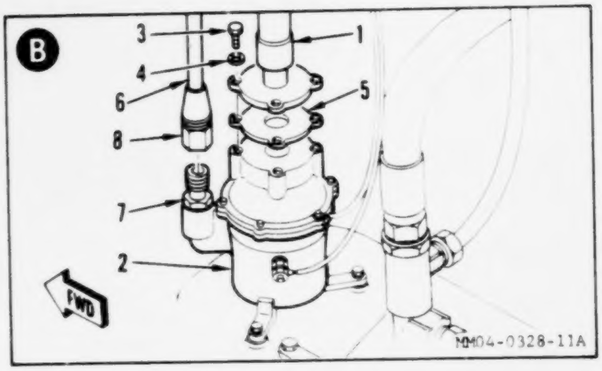
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



3. **Disconnect refueling hose (1) from forward fuel cell fuel shutoff valve (2).**

   a. Remove four bolts (3) and washers (4).

   b. Remove and discard seal (5).

4. **Remove pilot valve hose (6) from valve (2).**

   a. Hold union (7).

   b. Remove hose nut (8) from union (7).

GO TO NEXT PAGE

10-2-26. FORWARD FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-26

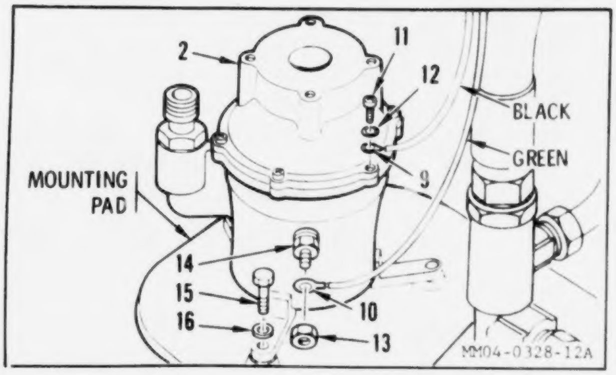
NOTE

Identify electrical leads before removal.

5. **Disconnect leads (9) and (10) from shutoff valve (2).**

   a. Remove screw (11), washer (12), and electrical lead (9) from valve (2).

   b. Remove nut (13) and lead (10) from stud (14).

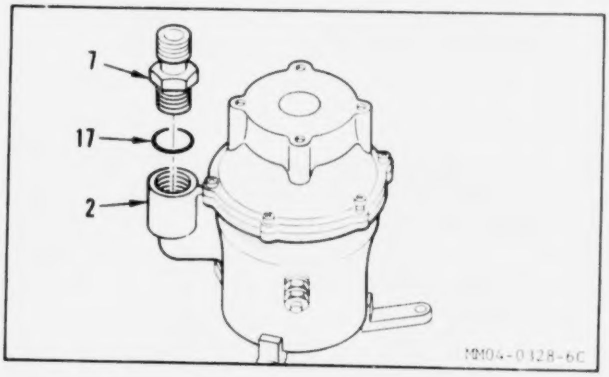


6. **Remove shutoff valve (2) from mounting pad.** Remove three bolts (15) and washers (16).

7. **Remove union (7) from shutoff valve (2).**

   a. Remove union (7) from valve (2).

   b. Remove and discard packing (17).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

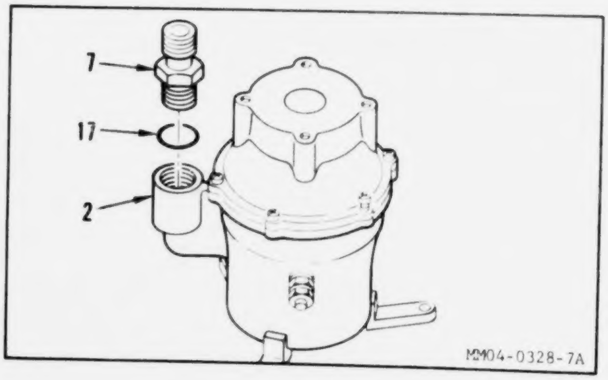
D. **INSTALLATION**

1. **Install union (7) in forward fuel cell fuel shutoff valve (2).**

   a. Lubricate new packing (17) and union (7) threads. Use petrolatum (E16).

   b. Install packing (17) on union (7).

   c. Install union (7) in valve (2).



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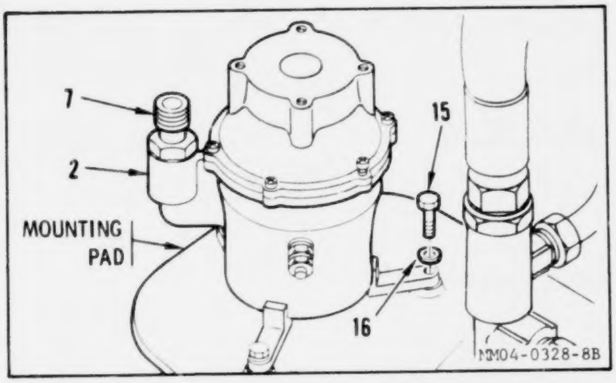
10-2-26. FORWARD FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-26

2. **Install shutoff valve (2) on mounting pad.**

   a. Aline valve (2) with union (7) facing left front of fuel cell.

   b. Install three washers (16) and bolts (15).



NOTE

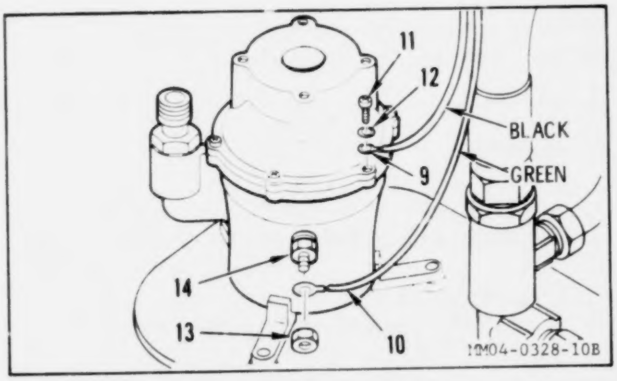
Identify electrical leads before installation.

3. **Connect electrical leads (9) and (10) to shutoff valve (2).**

   a. Install screw (11), washer (12), and lead (9).

   b. Install lead (10) on stud (14).

   c. Install nut (13) on stud (14).



4. **Connect pilot valve hose (6) to union (7).**

   a. Lubricate threads of union (7). Use petrolatum (E16).

   b. Hold union (7).

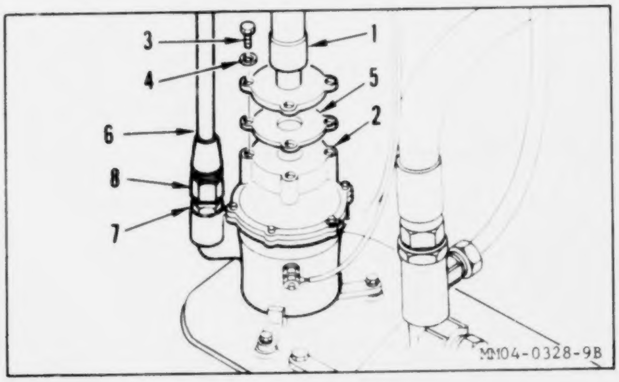
   c. Connect hose nut (8) to union (7).

5. **Install refueling hose (1) on shutoff valve (2).**

   a. Lubricate new seal (5). Use petrolatum (E16).

   b. Place seal (5) and hose (1) on valve (2). Aline mounting holes.

   c. Install four washers (4) and bolts (3).



6. **Inspect (TI).**

7. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

8. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-27. FORWARD FUEL CELL AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION 10-2-27

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

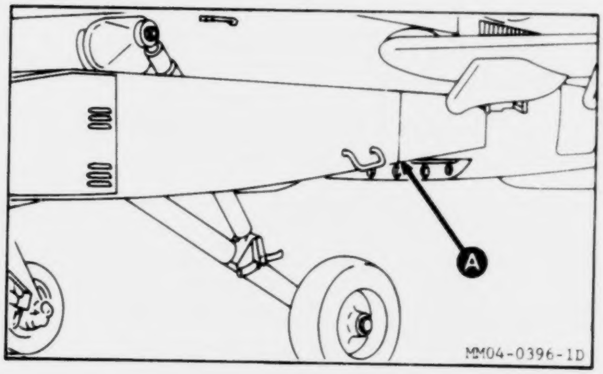
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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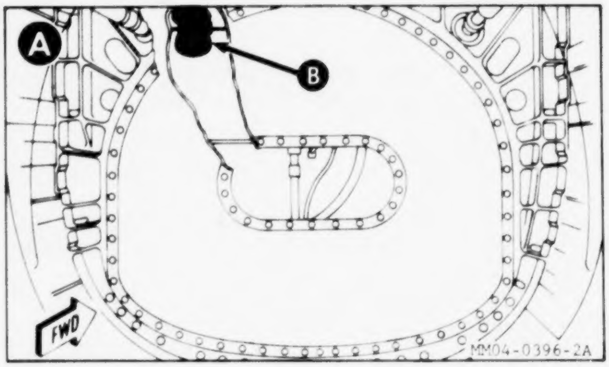
10-2-27. FORWARD FUEL CELL AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION (cont) 10-2-27

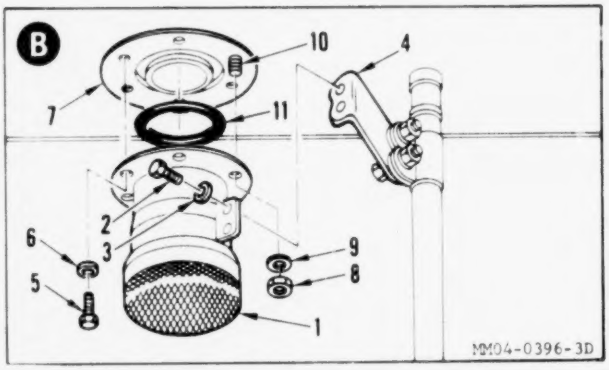


WARNING

Jet engine fuel is highly flamamble, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



3. **Remove forward air vent/pressure relief valve (1) from forward fuel cell.**

   a. Remove two bolts (2) and washers (3) from support bracket (4).

   b. Remove five bolts (5) and washers (6) from mounting pad (7).

   c. Remove nut (8) and washer (9) from stud (10).

   d. Remove valve (1) from bracket (4) and pad (7).

   e. Remove and discard packing (11).

GO TO NEXT PAGE

10-2-27. FORWARD FUEL CELL AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION (cont) 10-2-27

B. **CLEANING**

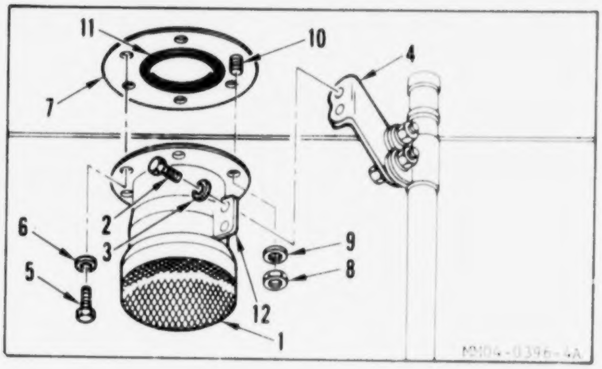
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks and damaged threads (para 10-2-1).

D. **INSTALLATION**

1. **Install forward air vent/pressure relief valve (1).**
    a. Lubricate new packing (11). Use petrolatum (E16).
    b. Install packing (11) on mounting pad (7).
    c. Position valve (1) on mounting pad (7) with bracket (12) facing aft.
    d. Aline holes in bracket (12) with holes in bracket (4).
    e. Install six washers (6) and bolts (5).
    f. Install washer (9) and nut (8) on stud (10).
    g. Install two washers (3) and two bolts (2).
2. **Inspect (TI).**
3. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).
4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).



END OF TASK

10-2-28. FORWARD FUEL CELL ENGINE FUEL SUPPLY BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-28

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Socket, 7/32, 3/8 Drive	5120-00-596-8511

Materials/Parts:

Packing
Wood Block, 2 by 4 by 18 inches
(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

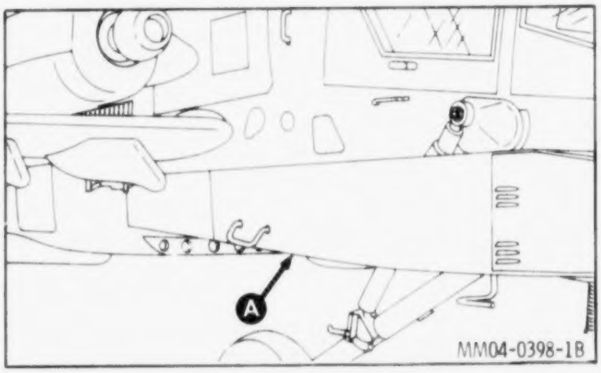
Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed

---

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL XFEED and FUEL XFER circuit breakers on pilot center circuit breaker panel.**



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10-2-28. FORWARD FUEL CELL ENGINE FUEL SUPPLY BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-28

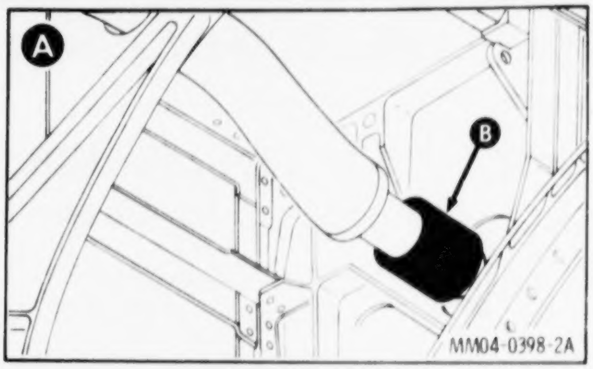
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

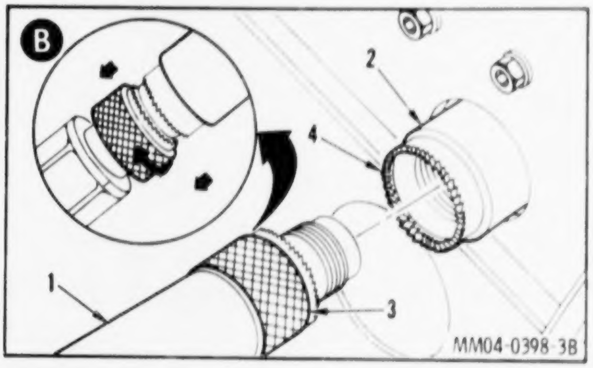
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

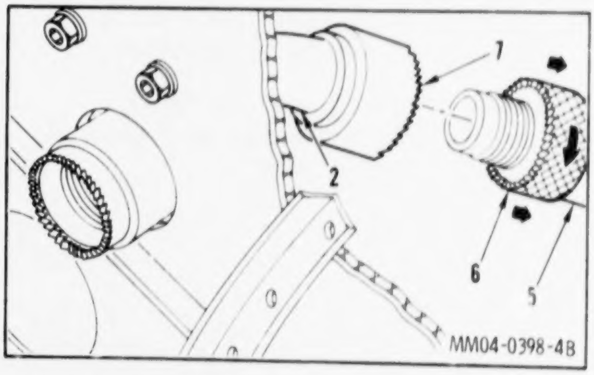
3. **Disconnect No. 1 engine lower fuel supply hose (1) from forward fuel cell engine fuel supply breakaway valve (2) in ammunition bay.**
   a. Pull sleeve (3) back to release locking teeth.
   b. Rotate sleeve (3) until free of adapter (4).
4. **Disconnect forward fuel cell engine fuel supply hose (5) from breakaway valve (2) inside fuel cell.**
   a. Pull sleeve (6) back to release locking teeth.
   b. Rotate sleeve (6) until it clears adapter (7).
5. **Remove two mounting bolts (8) and two washers (9) from ammunition bay.**
   Use 7/32, 3/8 drive socket.



MM04-0398-2A



MM04-0398-3B



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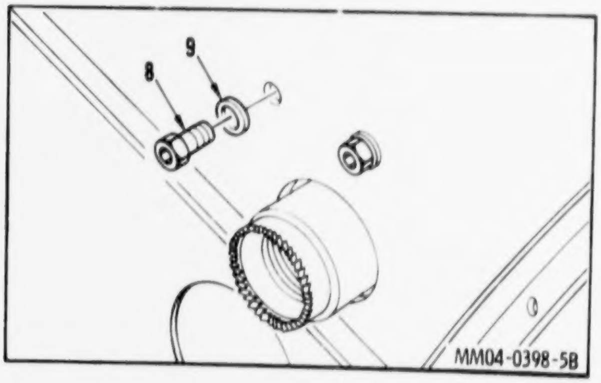

MM04-0398-5B

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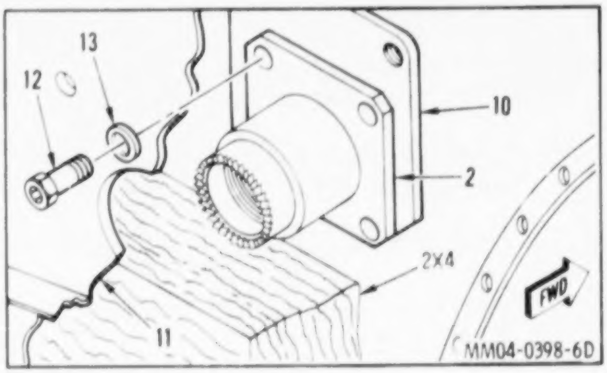
10-2-28. FORWARD FUEL CELL ENGINE FUEL SUPPLY BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-28



6. **Remove breakaway valve (2) from fuel cell mounting pad (10).**

CAUTION

Prying on the fuselage frame can cause damage. Do not bend or break the frame.

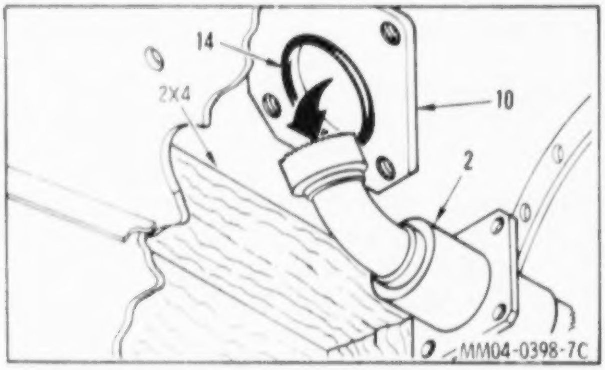
a. Push forward on fuel cell in the area of valve (2).

b. Move cell forward until valve (2) clears frame (11). Block cell in position. Use wood block.

c. Remove four bolts (12) and washers (13). Use 7/32, 3/8 drive socket.

d. Pull valve (2) aft to free valve (2) from pad (10).

e. Remove and discard packing (14).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check hoses for nicks, cracks, cuts, and damaged locking teeth** (para 10-2-1).

2. **Check valve, attaching parts, and surrounding surfaces for nicks, dents, cracks, damaged threads, and damaged locking teeth** (para 10-2-1).

GO TO NEXT PAGE

10-2-28. FORWARD FUEL CELL ENGINE FUEL SUPPLY BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-28

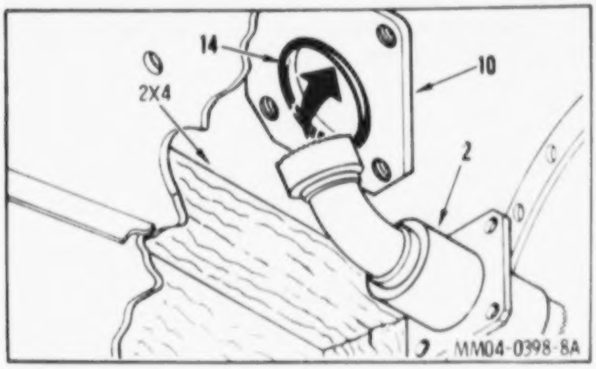
D. INSTALLATION

1. **Install breakaway valve (2) on pad (10) from ammunition bay.**

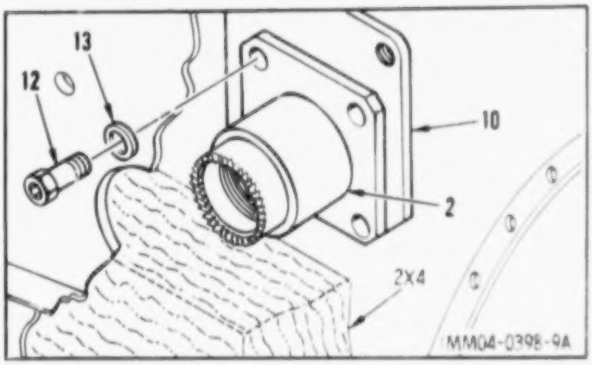
   a. Lubricate new packing (14). Use petrolatum (E16).

   b. Install packing (14) on pad (10).

   c. Insert valve (2) into fuel cell. Aline mounting holes.


14
10
2X4
2
MM04-0398-8A

   d. Install four washers (13) and bolts (12). Use 7/32, 3/8 drive socket.

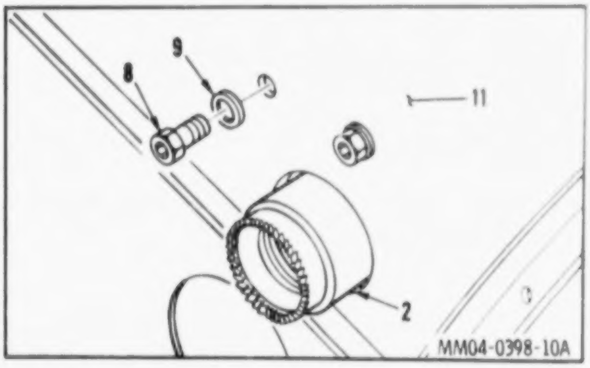

13
12
10
2
2X4
MM04-0398-9A

2. **Inspect (TI).**

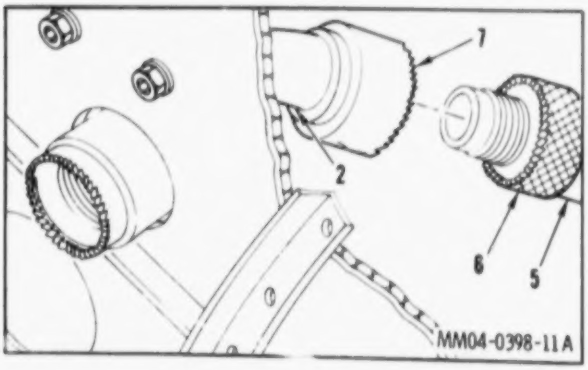
3. **Install valve (2) on fuselage frame (11).**

   a. Remove wood block. Allow fuel cell to move aft to frame (11).

   b. Aline valve mounting holes to frame mounting holes. Install two washers (9) and bolts (8). Use 7/32, 3/8 drive socket.


9
8
11
2
MM04-0398-10A

4. **Connect hose (5) to valve (2) from inside fuel cell.** Install sleeve (6) on adapter (7) by turning sleeve until locking teeth are engaged.


7
2
6
5
MM04-0398-11A

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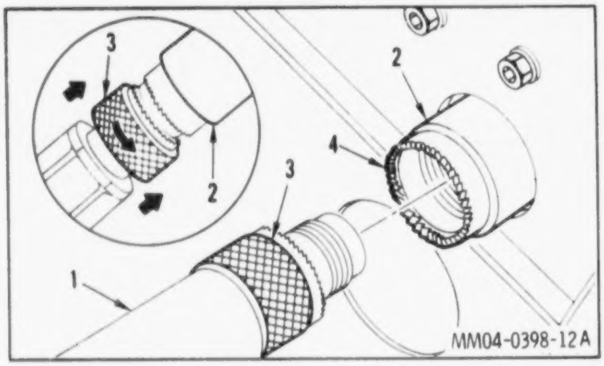
10-2-28. FORWARD FUEL CELL ENGINE FUEL SUPPLY BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-28



5. **Connect hose (1) to valve (2) from ammunition bay.** Install sleeve (3) on adapter (4). Turn sleeve (3) until locking teeth are fully engaged.

6. **Inspect (TI).**

7. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

8. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-29. FORWARD FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-29

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (3)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

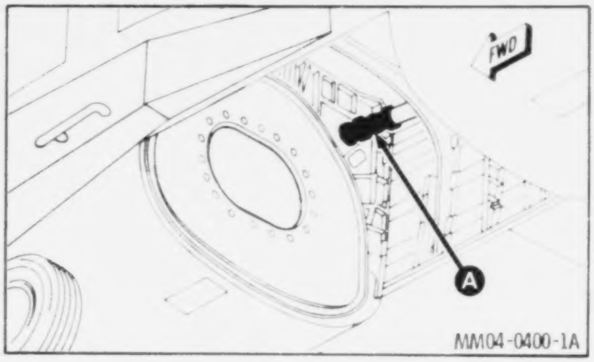
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell access panel and aft cover removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open FUEL FILL circuit breaker on pilot forward circuit breaker panel.**
3. **Open FUEL XFER circuit breaker on pilot center circuit breaker panel.**



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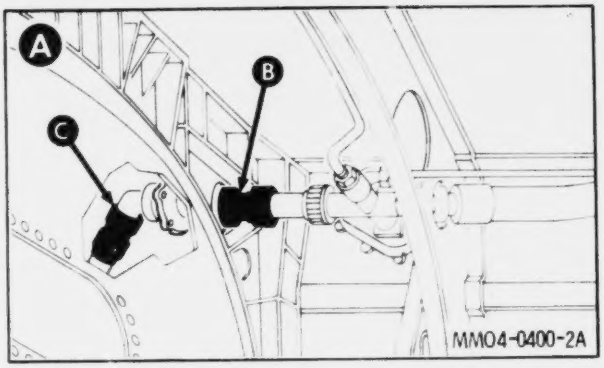
10-2-29. FORWARD FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-29



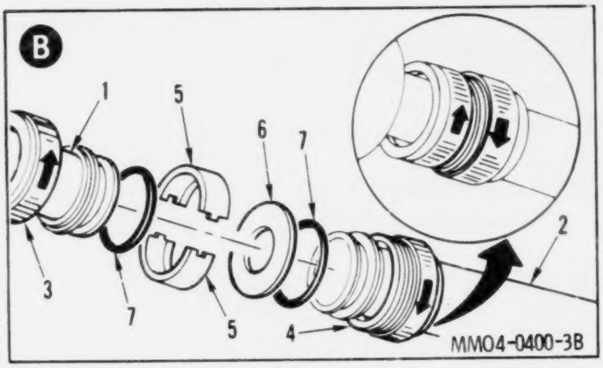
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

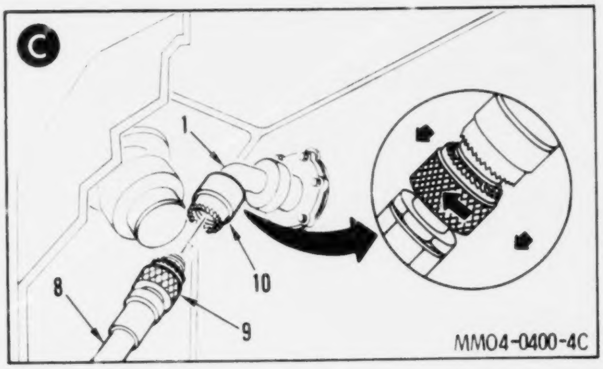
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

4. **Disconnect forward fuel cell refueling breakaway valve (1) from refueling line (2) in ammunition bay.**
   a. Turn coupling (3) until it clears body (4).
   b. Pull coupling nut (3) away from body (4).
   c. Remove retainer halves (5).
   d. Remove orifice (6).
   e. Remove and discard two packings (7).



5. **Disconnect forward fuel cell refueling hose (8) from valve (1) inside forward fuel cell.**
   a. Pull sleeve (9) to release locking teeth inside fuel cell.
   b. Rotate sleeve (9) until it clears adapter (10).



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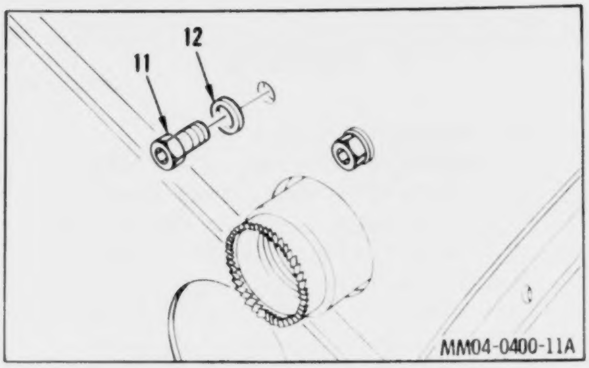
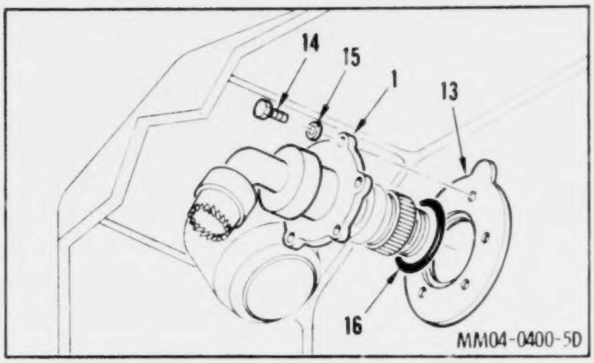
10-2-29. FORWARD FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-29

6. **Remove two bolts (11) and two washers (12) in ammunition bay.**



MM04-0400-11A

7. **Remove valve (1) from fuel cell cell mounting pad (13).**
   a. Remove six bolts (14) and washers (15).
   b. Separate valve (1) from fuel cell mounting pad (13).
   c. Remove and discard packing (16).



MM04-0400-5D

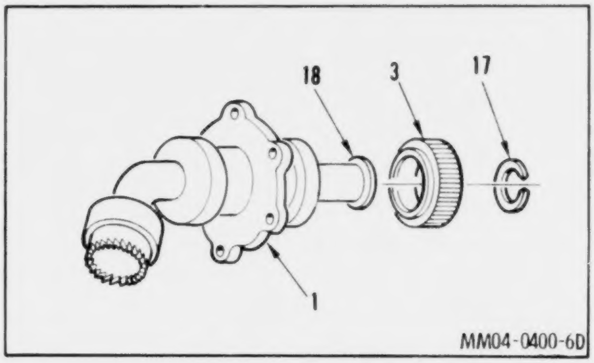
8. **Remove nut (3) from valve (1).**
   a. Remove washer (17) from valve ferrule (18).
   b. Remove nut (3) from valve ferrule (18).

B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

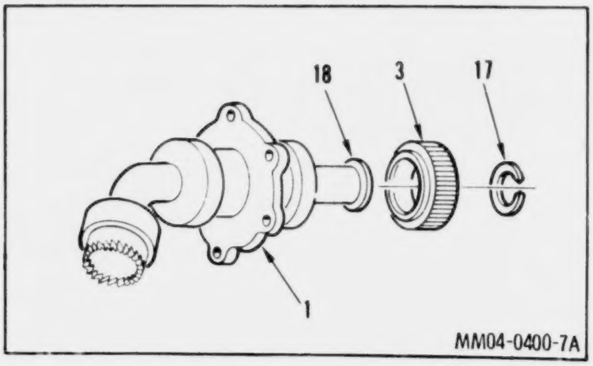
1. **Check mounting pad for cracks, cuts, and damaged helicoils.** None allowed.
2. **Check removed and attaching parts for nicks, dents, gouges, and damaged threads** (para 10-2-1).



MM04-0400-6D

D. **INSTALLATION**

1. **Install nut (3) on valve (1).**
   a. Slide nut (3) over ferrule (18).
   b. Install washer (17) between ridges of ferrule (18).



MM04-0400-7A

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10-2-29. FORWARD FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-29

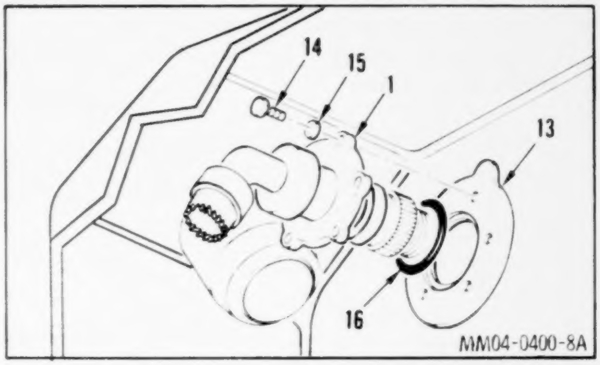
2. **Install breakaway valve (1) on fuel cell mounting pad (13) inside fuel cell.**

   a. Lubricate new packing (16). Use petrolatum (E16).

   b. Install packing (16) on pad (13).

   c. Install valve (1) on pad (13).

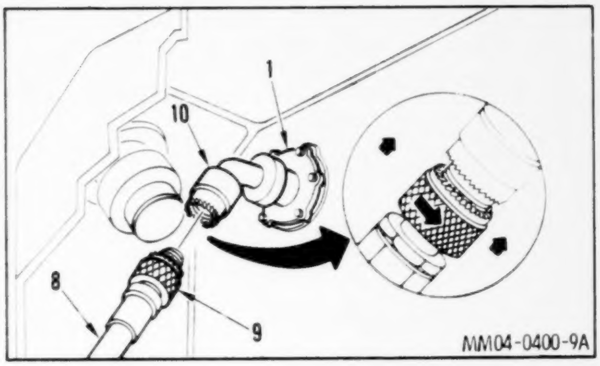
   d. Install six washers (15) and bolts (14).



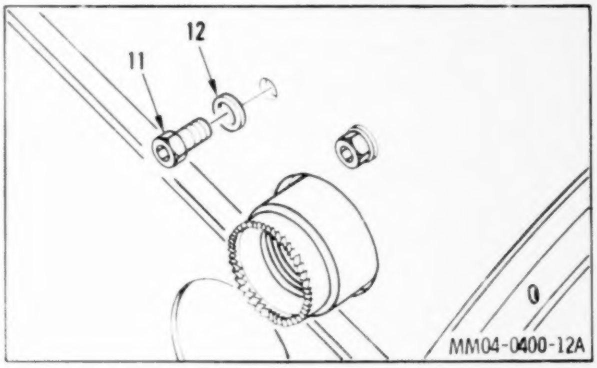
3. **Connect refueling hose (8) to breakaway valve (1).**

   a. Connect sleeve (9) with adapter (10).

   b. Turn sleeve (9) until seated and locking teeth engage with adapter (10).



4. **Install two washers (12) and mounting bolts (11) from ammunition bay.**



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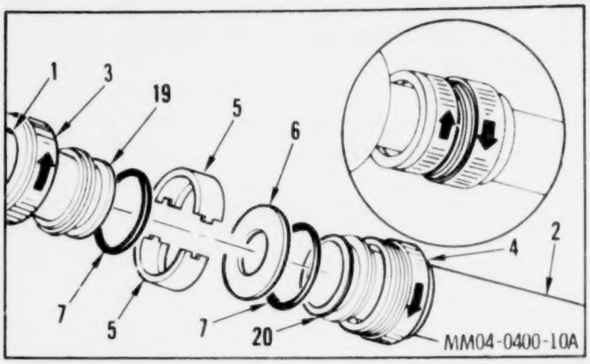
10-2-29. FORWARD FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-29



5. **Connect refueling line (2) to breakaway valve (1) in ammunition bay.**

   a. Lubricate two new packings (7). Use petrolatum (E16).

   b. Install packings (7) on ferrules (19) and (20).

   c. Install orifice (6) between ferrules (19) and (20).

   d. Install retainer halves (5) over ferrules (19) and (20) and packings (7).

   e. Lubricate threads of body (4). Use petrolatum (E16).

   f. Slide and hold coupling nut (3) over retainers (5).

   g. Tighten body (4).

6. **Inspect (TI).**

7. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

8. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-30. REFUELING LINE CONNECTOR REPLACEMENT 10-2-30

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (4)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

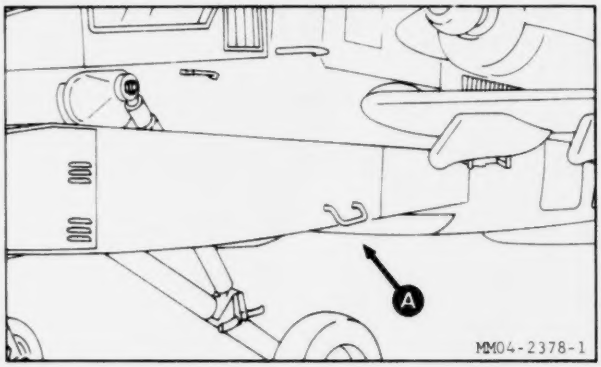
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
TM 9-1090-208-23	Ammunition storage magazine removed



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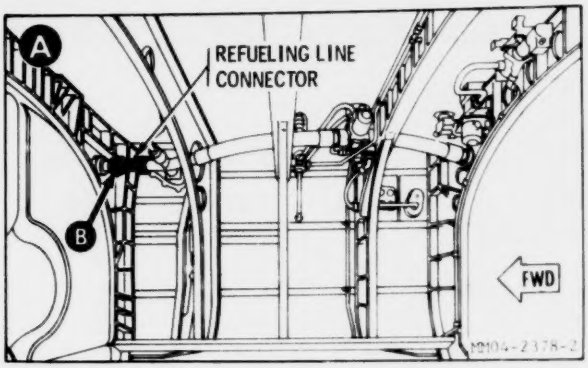
10-2-30. REFUELING LINE CONNECTOR REPLACEMENT (cont) 10-2-30

A. REMOVAL


A
REFUELING LINE CONNECTOR
B
FWD
MM04-2378-2

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Disconnect forward refuel line connector coupling nut (1) from coupling body (2).**

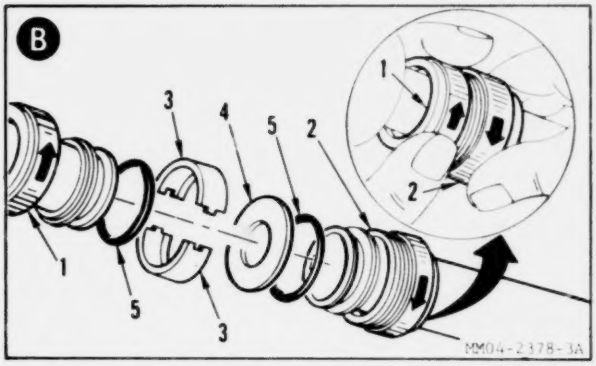
   a. Turn nut (1) until it clears body (2).

   b. Pull nut (1) away from body (2).

   c. Remove retainer halves (3).

   d. Remove orifice (4).

   e. Remove and discard two packings (5).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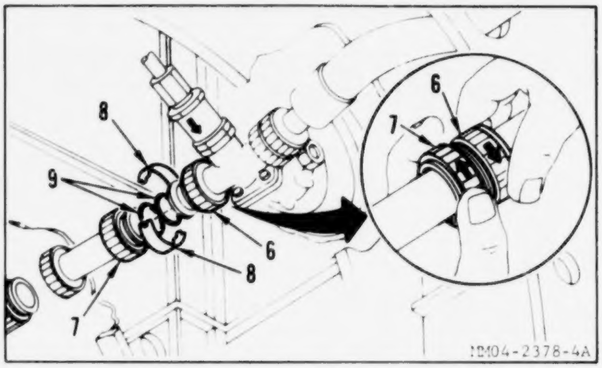
10-2-30. REFUELING LINE CONNECTOR REPLACEMENT (cont) 10-2-30

2. **Disconnect aft refuel line connector coupling nut (6) from coupling body (7).**
   a. Turn nut (6) until it clears body (7).
   b. Pull nut (6) away from body (7).
   c. Remove snap retainer halves (8).
   d. Remove and discard two packings (9).

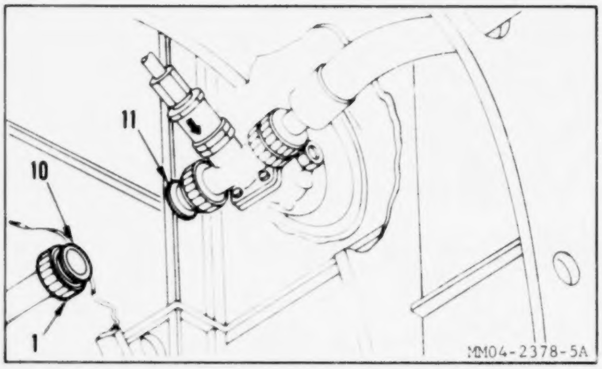


B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

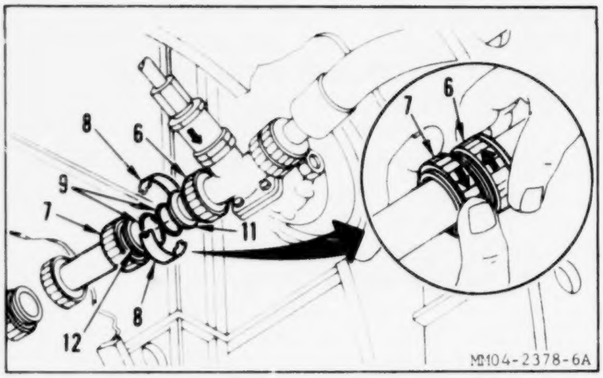
C. INSPECTION

Check breakaway valve connector fitting and manifold fitting for cracks, nicks, gouges, and deformation (para 10-2-1).



D. INSTALLATION

1. **Connect nut (6) to body (7).**
   a. Lubricate two new packings (9). Use petrolatum (E16).
   b. Install one packing (9) on aft connector fitting (12).
   c. Install one packing (9) on manifold fitting (11).
   d. Install snap retainer halves (8) over fittings (11) and (12).
   e. Lubricate threads of body (7). Use petrolatum (E16).
   f. Slide and hold nut (6) over retainers (8) and packings (9).
   g. Tighten body (7).



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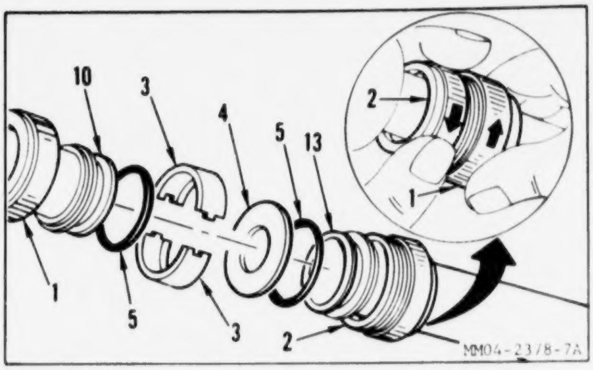
10-2-30. REFUELING LINE CONNECTOR REPLACEMENT (cont) 10-2-30



2. **Connect nut (1) to body (2).**
   a. Lubricate two new packings (5). Use petrolatum (E16).
   b. Install one packing (5) on forward connector fitting (13).
   c. Install one packing (5) on breakaway valve connector fitting (10).
   d. Install orifice (4) between fittings (10) and (13).
   e. Install retainer halves (3) over fittings (10) and (13) and two packings (5).
   f. Lubricate threads of nut (2). Use petrolatum (E16).
   g. Slide and hold nut (2) over retainer (3).
   h. Tighten body (1).
3. **Inspect (TI).**
4. **Refuel helicopter (SPA) method** (para 1-5-5).
5. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
6. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL 10-2-31

This task covers: A. REMOVAL B. CLEANING C. INSPECTION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Removal and Installation, Fuel Cell	1730-01-181-9274
Cleaner, Vacuum Pneumatic	7910-00-807-3704
Apron, Impermeable	8415-00-082-6108
Gloves	8415-00-266-8677
Goggles	4240-00-052-3776
Respirator, Air Filtering	4240-00-022-2524

Materials/Parts:

(E22) Methyl Ethyl Ketone (MEK)
(E41) Tape, Duct

Personnel Required:

67R10 Attack Helicopter Repairer
Two to assist

References:

TM 55-1500-209-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-4	Forward poppet draincock removed
10-2-64	Forward fuel cell lightning arrestor removed
10-2-19	Forward fuel cell forward access cover removed
10-2-37	Forward fuel cell vent tube removed
10-2-16	Forward fuel cell vent tube adapter removed
10-2-26	Forward fuel cell fuel shutoff valve removed
10-2-36	Forward fuel cell refueling hose removed
10-2-33	Forward fuel cell fuel/defuel valve removed
10-2-22	Forward fuel cell pilot valve hose removed
10-2-23	Forward fuel cell level control pilot valve removed
10-2-21	Forward fuel cell check/thermal relief valve removed
10-2-35	Forward fuel cell engine fuel supply hose removed
10-2-25	Forward fuel cell aft fuel quantity transmitter removed
10-2-27	Forward air vent/pressure relief valve removed
10-2-28	Forward fuel cell engine supply breakaway valve removed
10-2-29	Forward fuel cell refueling breakaway valve removed

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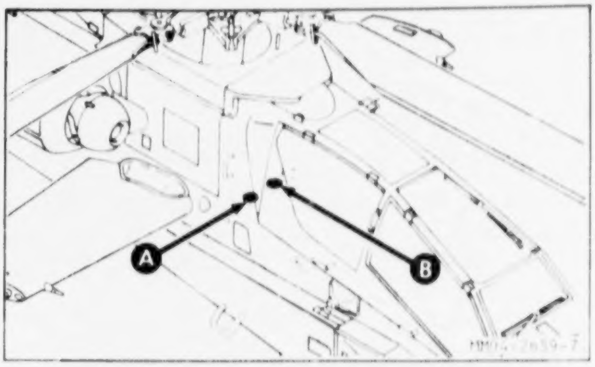
10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL (cont) 10-2-31

A. REMOVAL



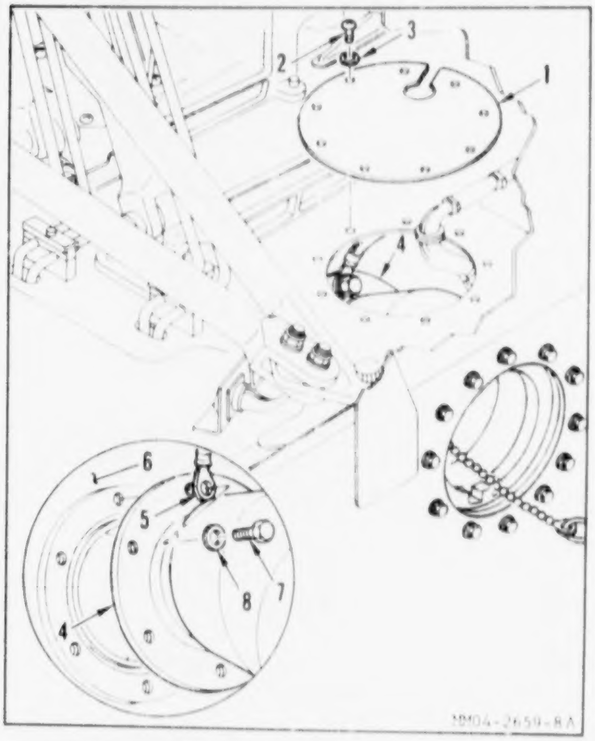
1. **Remove access cover (1) from transmission deck.** Remove nine screws (2) and packings with retainer (3).

WARNING

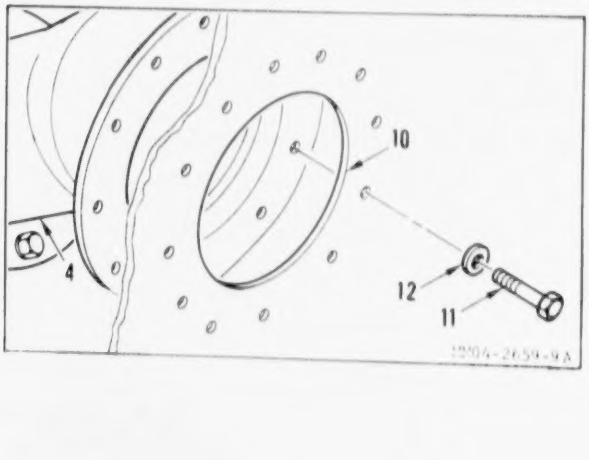
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



2. **Disconnect filler neck (4) and grounding strap (5) from fuel cell (6).** Remove six bolts (7), washers (8), and grounding strap (5).



3. **Disconnect filler neck (4) from forward gravity filler port (10).** Remove 12 bolts (11) and washers (12).

GO TO NEXT PAGE

10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL (cont) 10-2-31

4. **Remove access cover (13) from transmission deck.** Remove eight screws (14) and packings with retainer (15).

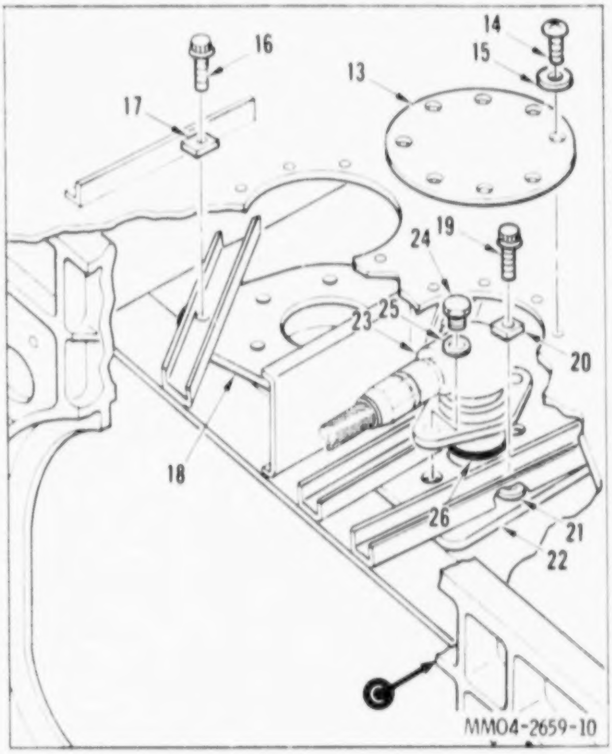
5. **Remove two bolts (16) and rectangular washers (17) from vent tube adapter mounting pad (18).**

6. **Remove two bolts (19), rectangular washers (20), and flat washers (21) from pilot valve mounting pad (22).**

7. **Remove fuel cell breakaway valve (23) from mounting pad (22).**

   a. Remove two bolts (24) and washers (25).

   b. Remove and discard packing (26).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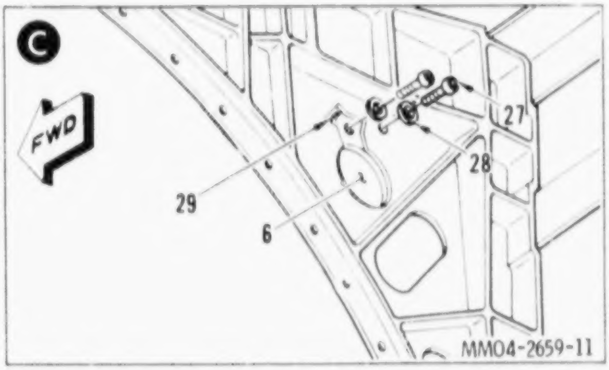
8. **Remove two bolts (27) and two washers (28) that attach cell (6) to refueling breakaway valve mounting pad (29) in ammunition bay.**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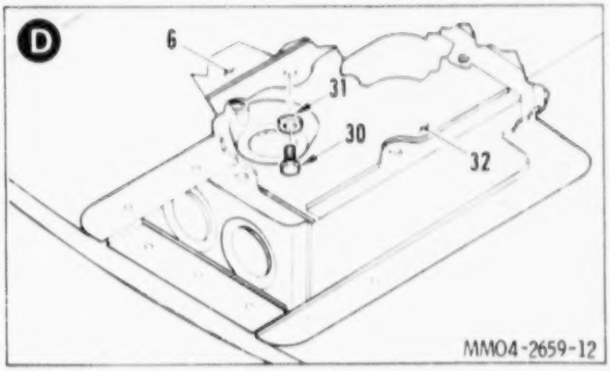
9. **Remove four bolts (30) and washers (31) that attach cell (6) to drain valve mounting pad (32).**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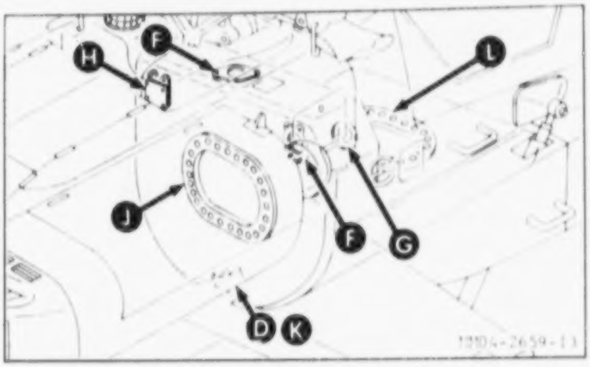
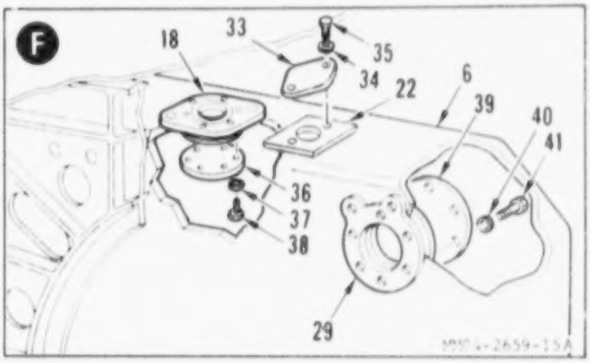
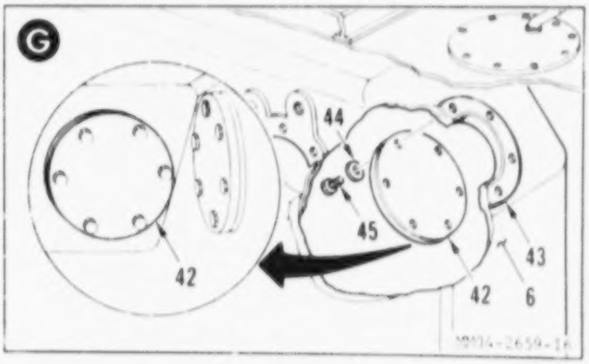
10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL (cont) 10-2-31







NOTE

Steps 10 thru 17 install seven covers and one plug. To install the seven covers, use bolts and washers that were used to attach parts removed from fuel cell.

10. **Install cover plate (33) on mounting pad (22) from transmission deck.** Install two washers (34) and bolts (35).

11. **Install cover plate (36) on mounting pad (18) inside cell (6).** Install six washers (37) and bolts (38).

12. **Install cover plate (39) on mounting pad (29).** Install six washers (40) and bolts (41).

13. **Install cover plate (42) on filler neck mounting pad (43) inside fuel cell (6).** Install six washers (44) and bolts (45).

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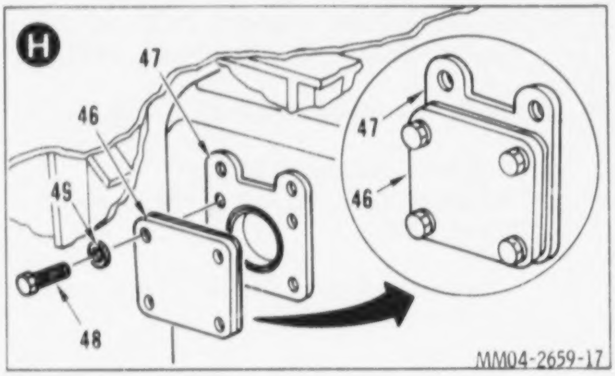
10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL (cont) 10-2-31

14. Install cover plate (46) on engine fuel breakaway valve mounting pad (47) in ammunition bay. Install four washers (49) and bolts (48).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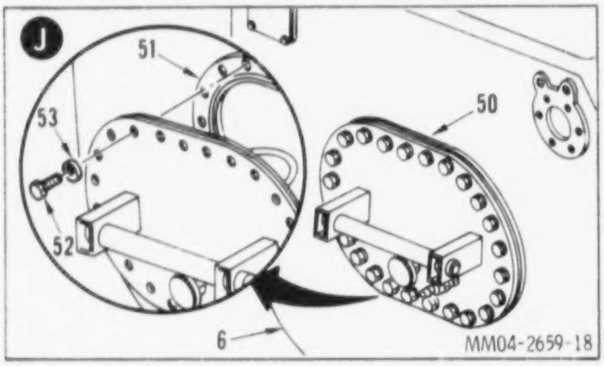
15. Install cover plate (50) on aft access cover mounting pad (51) in ammunition bay. Install 24 washers (53) and bolts (52).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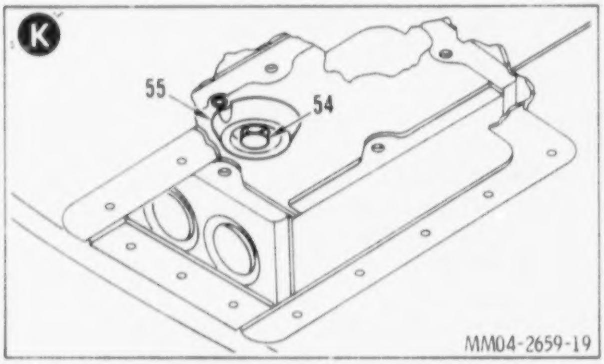
16. Install plug (54) in drain valve fitting (55).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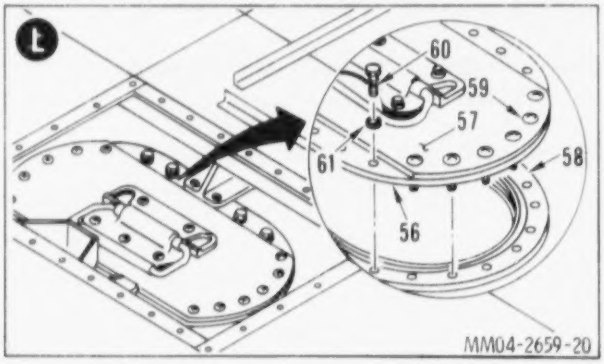
17. Install cover plate (56) and handle (57) on forward access cover mounting pad (58) in pilot station.

    a. Secure 12 captive screws (59).

    b. Install eight washers (61) and bolts (60).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10-2-31. FORWARD FUEL CELL FILLER NECK REMOVAL (cont) 10-2-31

   c. Install four washers (63) and bolts (62) under brackets (64).

18. **Exhaust air from fuel cell (6).**

   a. Install vacuum cleaner adapter (65) on quick-disconnect plug (66).

   b. Connect vacuum cleaner hose (67) to adapter (65).

   c. Turn shutoff valve knob (68) counterclockwise to open valve (69).

   d. Turn on vacuum cleaner (70) to exhaust air from fuel cell (6).

   e. Turn knob (68) clockwise to close valve (69). Shut off vacuum cleaner (70).

   f. Disconnect hose (67) from adapter (65).

   g. Remove adapter (65) from plug (66).

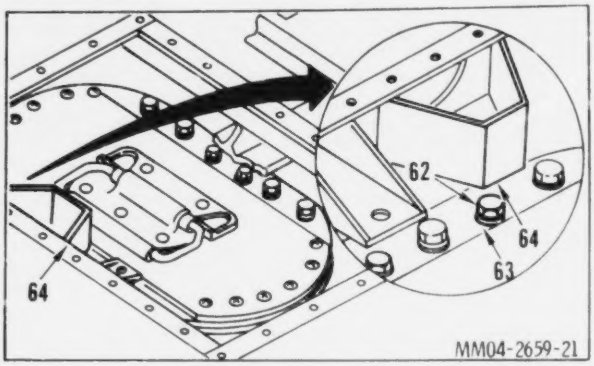
CAUTION

Do not pull fuel cell by its fittings. Do not force removal or pry on fuel cell with sharp objects.

19. **Cover sharp edges of helicopter structure with duct tape (E41) to prevent damage to fuel cell.**

20. **Collapse cell (6) and remove filler neck (4).**

21. **Remove and discard packing (71) from fuel cell groove (72).**



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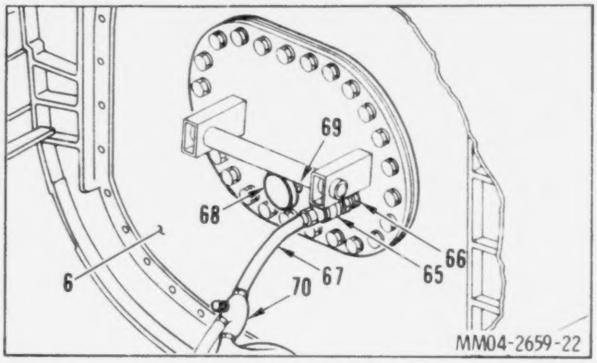

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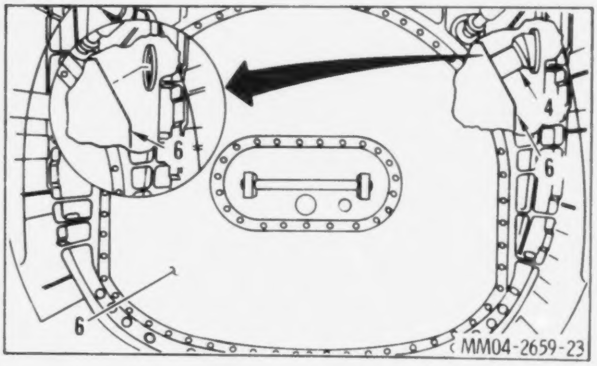

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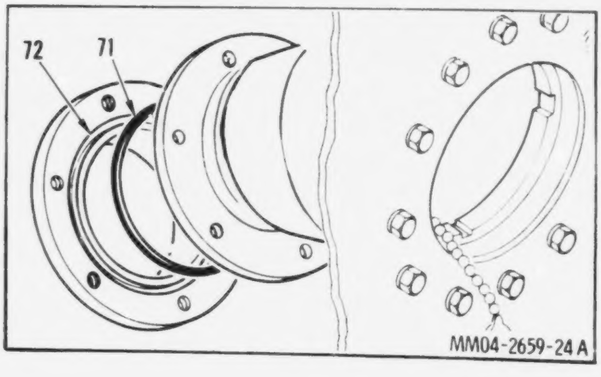

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B. CLEANING

1. Wipe filler neck mounting pad with a clean rag.

2. Remove sealing compound from inside surface of area surrounding forward gravity filler port.

WARNING

MEK is flammable and toxic. Use in well ventilated area away from open flame. If MEK comes in contact with eyes or skin, flush with water. If irritation occurs, seek medical aid.

3. Wipe inside surface on area around forward gravity filler port with MEK (E22) and clean rags. Wear gloves, goggles, air filtering respirator, and impermeable apron. Wipe surface dry with clean rags.

C. INSPECTION

Check area of filler neck mounting pad for cracks, nicks, gouges, or damaged helicoil inserts (para 10-2-1).

END OF TASK

10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION 10-2-32

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Fuel Cell Removal and Installation	1730-01-181-9274
Cleaner, Vacuum, Pneumatic	7910-00-807-3704
Screwdriver Bit and Socket Set	5120-00-678-5057

Materials/Parts:

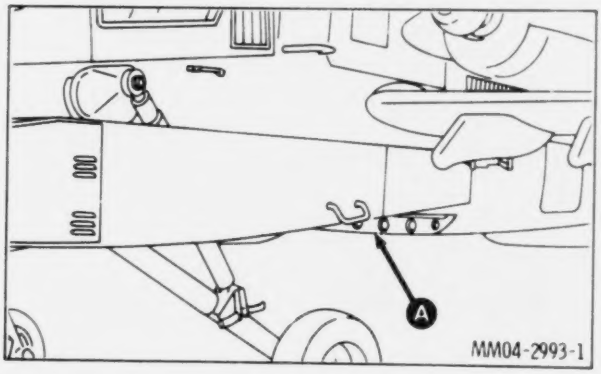
	Packing with retainer (17)
	Packing (3)
(E16)	Petrolatum
(E28)	Compound, Sealing

Personnel Required:

67R10	Attack Helicopter Repairer (3) Two to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T



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10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

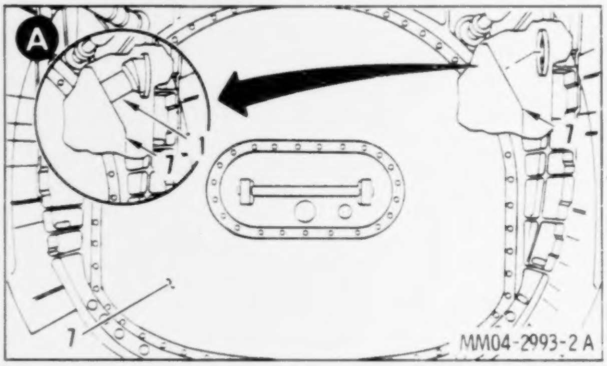
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Install fuel filler neck (1) on forward gravity filler port (2).**



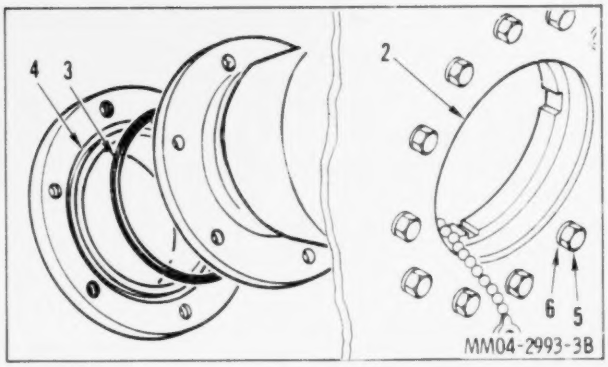
   a. Apply sealing compound to inside of area surrounding filler port (2). Use sealing compound (E28).

   b. Lubricate new packing (3) with petrolatum. Use petrolatum (E16).

   c. Install new packing (3) in fuel cell groove (4).

   d. Insert filler neck (1) through forward fuel cell aft access opening.

   e. Connect filler neck (1) to filler port (2). Install 12 washers (6) and bolts (5).



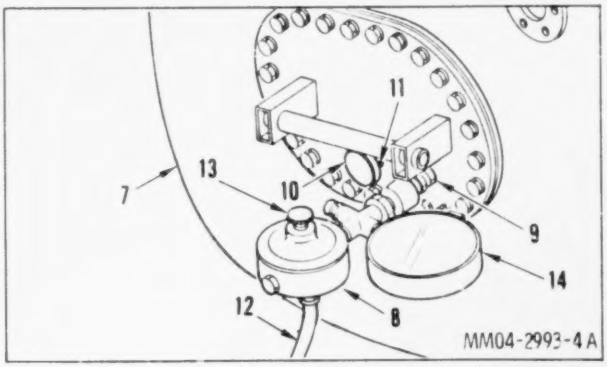
2. **Inflate fuel cell (7).**

   a. Connect pneumatic pressure filler (8) to quick-disconnect plug (9).

   b. Turn shutoff valve knob (10) fully counterclockwise to open valve (11).

   c. Connect air hose (12) to pressure filler (8).

   d. Turn regulator knob (13) of pressure filler (8) clockwise until **2 PSI** is indicated on pressure regulator gage (14).



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10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

CAUTION

Ensure that relief valve is venting property.

NOTE

Pressure fill relief valve will begin venting pressure at approximately 0.5 psi.

e. Continue to apply pressure until fuel cell is fully inflated.

f. With air pressure still flowing, turn shutoff valve knob (10) fully clockwise to close valve (11).

g. Disconnect air hose (12) from pressure filler (8).

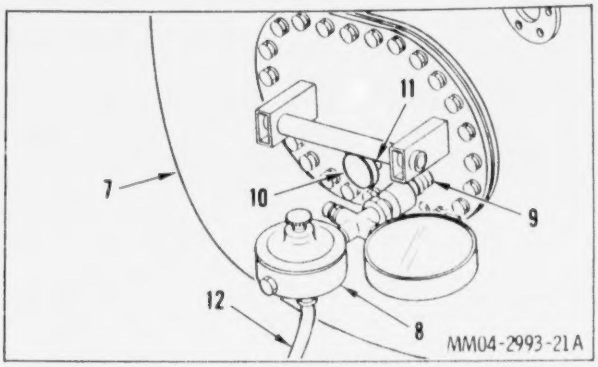
WARNING

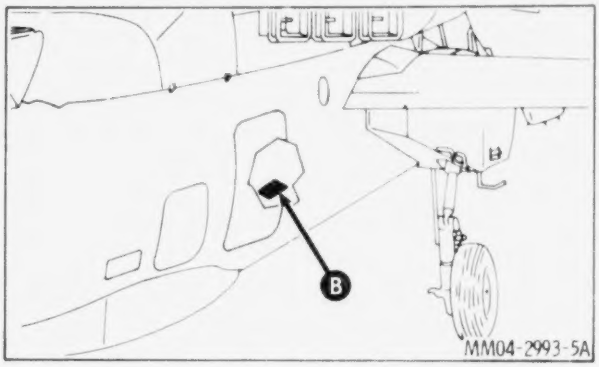
High pressure air exists. Air pressure from the pneumatic vacuum cleaner shall be vented and the regulator gage indicates 0 psi before disconnecting, regulator. Failure to do so could cause death or serious injury. Observe all safety precautions.

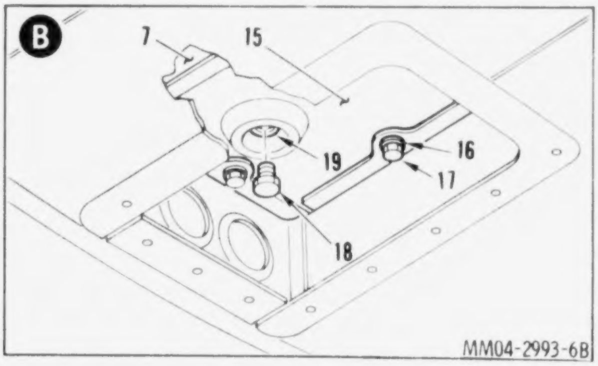
h. Disconnect pressure filler (8) from quick-disconnect plug (9).

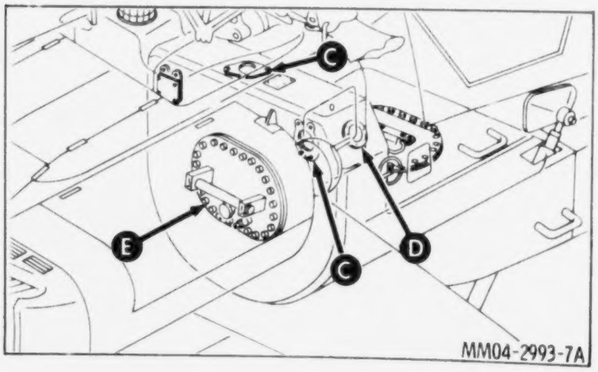
3. **Connect fuel cell (7) to drain valve mounting pad (15).** Install four washers (16) and bolts (17).

4. **Remove plug (18) from drain valve fitting (19).**









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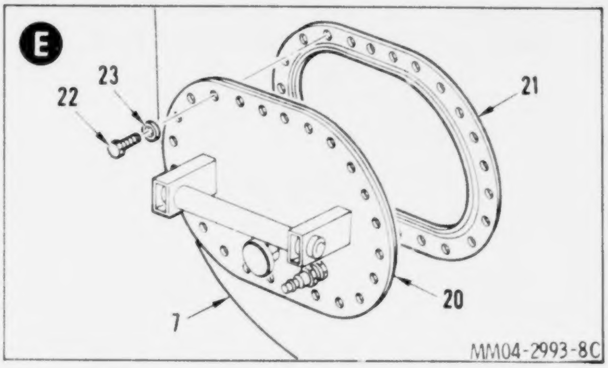
10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

5. **Remove cover plate (20) from aft access cover mounting pad (21) from ammunition bay.** Remove 24 bolts (22) and washers (23).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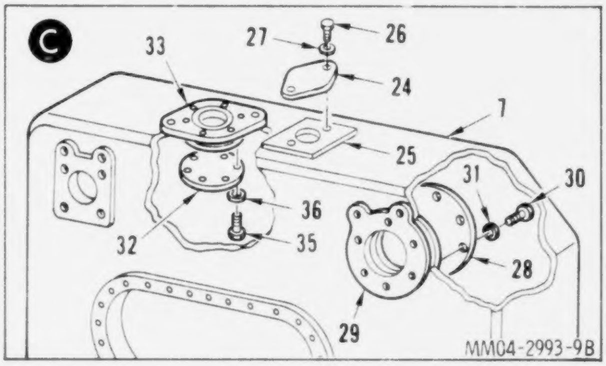
6. **Remove cover plate (24) on mounting pad (25) from transmission deck.** Remove two bolts (26) and washers (27).

7. **Remove cover plate (28) from refueling breakaway valve mounting pad (29) from inside fuel cell (7).** Remove six bolts (30) and washers (31).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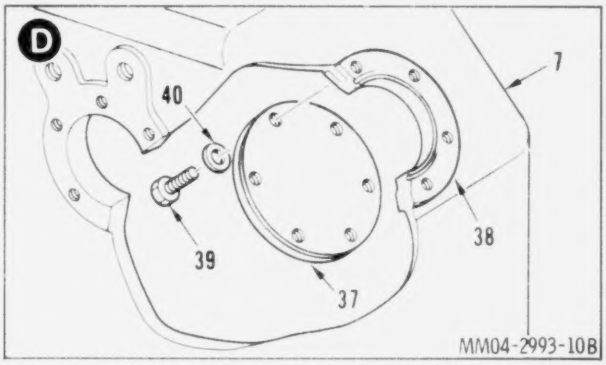
8. **Remove cover plate (32) from vent tube adapter mounting pad (33) from inside fuel cell (7).** Remove six bolts (35) and washers (36).

9. **Remove cover plate (37) from filler neck mounting pad (38) from inside fuel cell (7).** Remove six bolts (39) and washers (40).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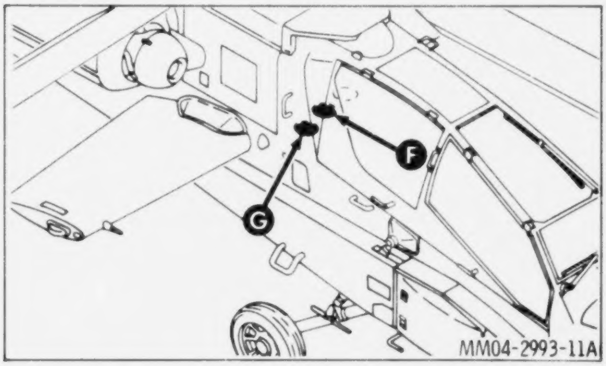
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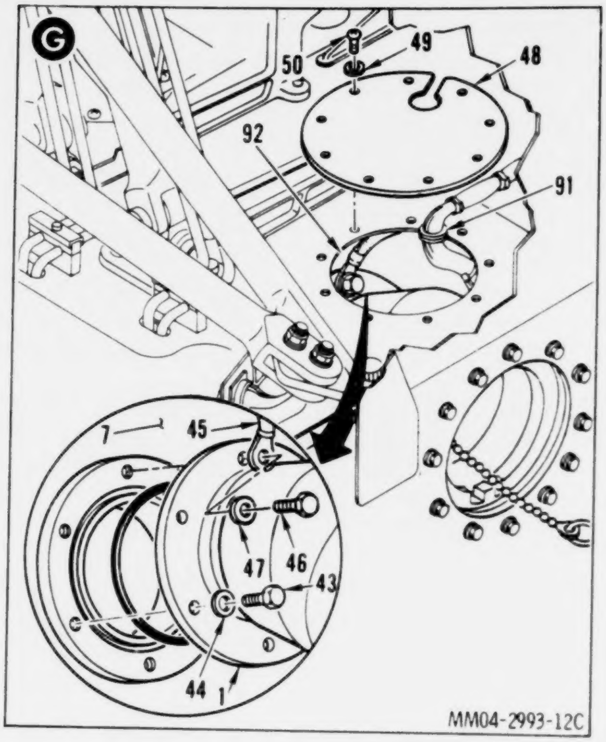
10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32



10. **Connect fuel cell (7) to filler neck (1) from transmission deck.**

    a. Install five washers (44) and bolts (43).

    b. Install ground strap (45) with washer (47) and bolt (46).

11. **Install access cover (48) on transmission deck.**

    a. Slide grommet and wire bundle (91) into slot in cover (48).

    b. Position cover (48) over opening in deck (92).

    c. Lubricate nine new packings with retainer (49). Use petrolatum (E16).

    d. Install nine packings with retainer (49) and screws (50) through cover (48).

12. **Install forward fuel cell engine fuel supply breakaway valve** (para 10-2-28).

GO TO NEXT PAGE

10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

13. **Connect fuel cell (7) to vent tube adapter mounting pad (51) from transmission deck.** Install two bolts (52) and rectangular washers (53).

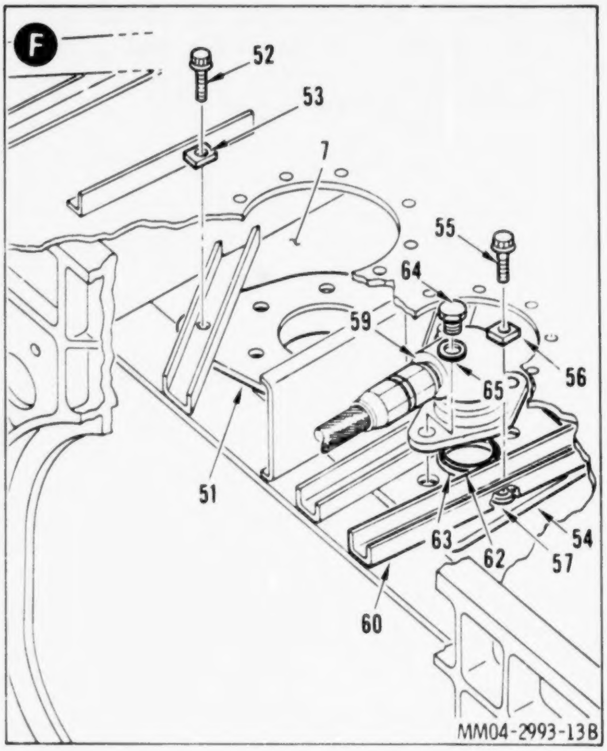
14. **Connect fuel cell (7) to pilot valve mounting pad (54) from transmission deck.** Install two rectangular washers (56), flat washers (57), and bolts (55). Position flat washers (57) between helicopter structure (60) and fuel cell (7).

15. **Install valve (59) on mounting pad (54)**

    a. Lubricate packing (62). Use petrolatum (E16).

    b. Install packing (62) in groove (63).

    c. Install two washers (65) and bolts (64).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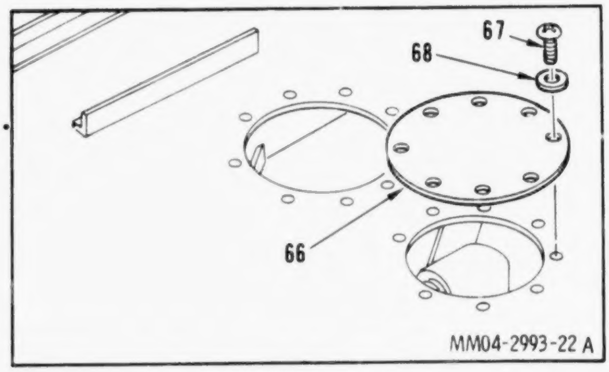
16. **Install access cover (66).**

    a. Lubricate eight new packings with retainer (68). Use petrolatum (E16).

    b. Install eight packing with retainer (68) and screws (67) through cover.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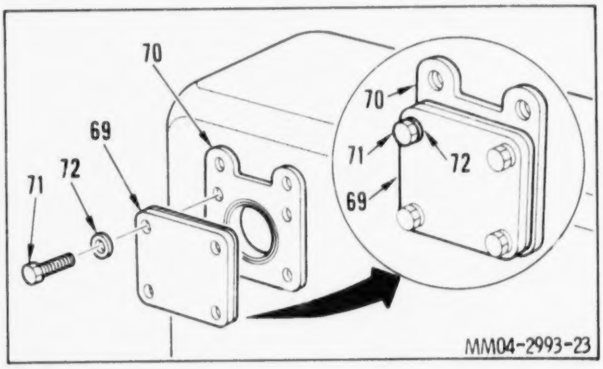
17. **Remove cover plate (69) from pad (70) in ammunition bay.** Remove four bolts (71) and four washers (72).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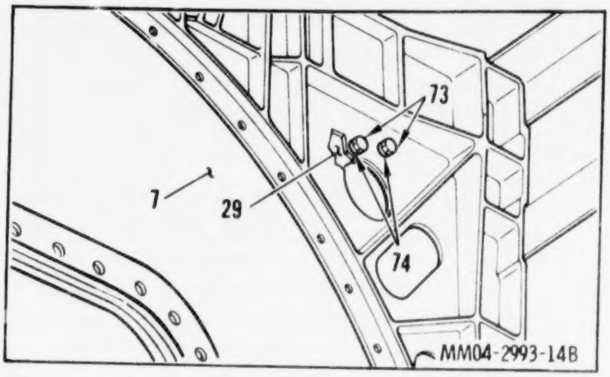
10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

18. **Connect fuel cell (7) to refueling breakaway valve mounting pad (29) from ammunition bay.** Install two washers (74) and bolts (73).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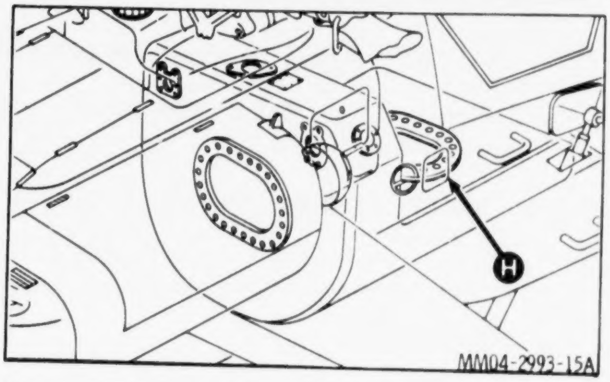
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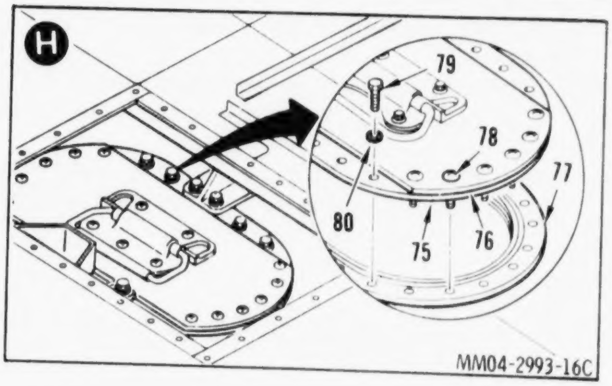
19. **Remove cover plate (75) and handle (76) from forward access cover mounting pad (77) from pilot station.**

    a. Unfasten 12 captive screws (78) on handle (76).

    b. Remove 12 bolts (79) and washers (80) from plate (76).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10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

NOTE

The access cover installed in steps 20 thru 24 is used when the helicopter is in service.

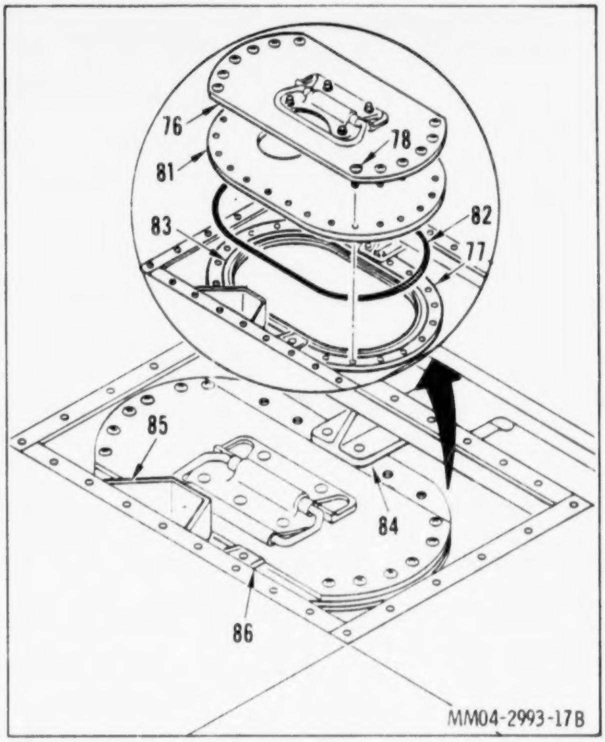
20. **Position cover (81) on mounting pad (77).**

    a. Lubricate new packing (82). Use petrolatum (E16).

    b. Install packing (82) in groove (83) on mounting pad (77).

    c. Position cover (81) on mounting pad (77) and under three brackets (84), (85), and (86). See the FWD and TOP markings on cover plate (81).

21. **Install handle (76) on cover (81).** Fasten 12 captive screws (78) on handle (76) through cover (81) into mounting pad (77).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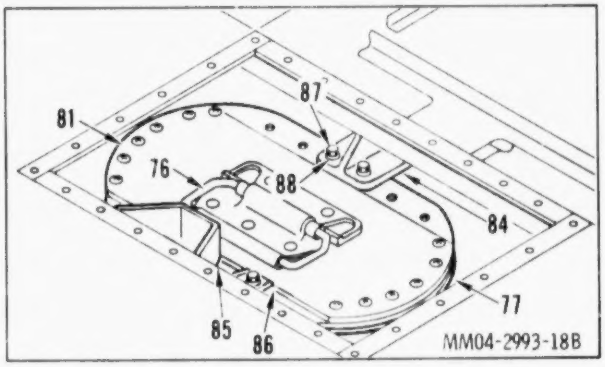
MM04-2993-17B

22. **Install four bolts (87) through four washers (88), brackets (84), (85), (86), and cover (81) into mounting pad (77).**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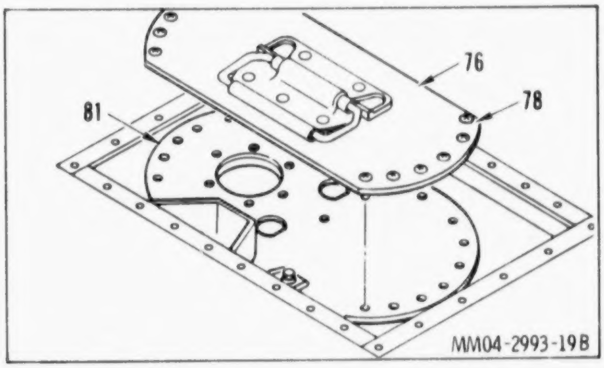
23. **Remove handle (76) from cover (81).** Unfasten 12 captive screws (78) on handle (76).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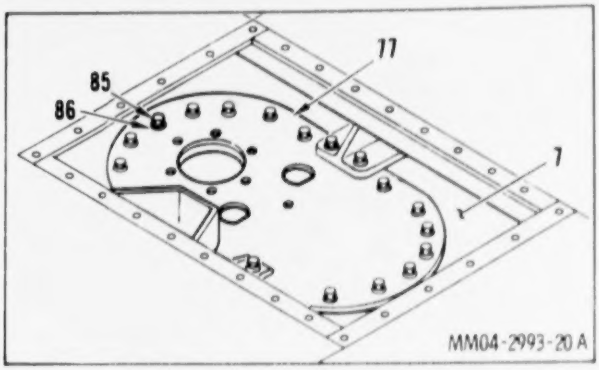
10-2-32. FORWARD FUEL CELL FILLER NECK INSTALLATION (cont) 10-2-32

24. Install 20 washers (90) and bolts (89) in access cover (81).



25. Install forward fuel cell refueling breakaway valve (para 10-2-29).
26. Install forward fuel cell engine supply breakaway valve (para 10-2-28).
27. Install forward air vent/pressure relief valve (para 10-2-27).
28. Install forward fuel cell aft fuel quantity transmitter (para 10-2-25).
29. Install forward fuel cell engine fuel supply hose (para 10-2-35).
30. Install forward fuel cell check/thermal relief valve (para 10-2-21).
31. Install forward fuel cell level control pilot valve (para 10-2-23).
32. Install forward fuel cell pilot valve hose (para 10-2-22).
33. Install forward fuel cell fuel/defuel check valve (para 10-2-33).
34. Install forward fuel cell refueling hose (para 10-2-36).
35. Install forward fuel cell fuel shutoff valve (para 10-2-26).
36. Install forward fuel cell vent tube (para 10-2-37).
37. Install forward fuel cell forward access cover (para 10-2-19).
38. Install forward fuel cell vent tube adapter (para 10-2-16).
39. Install forward poppet draincock (para 10-2-4).
40. Install forward fuel cell lightning arrestor (para 10-2-64).
41. Inspect (TI).
42. Refuel helicopter (para 1-5-2).
43. Perform fuel quantity indication/transfer operational check (TM 55-1520-238-T).

END OF TASK

10-2-33. FORWARD FUEL CELL FUEL/DEFUEL VALVE REMOVAL/INSTALLATION 10-2-33

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

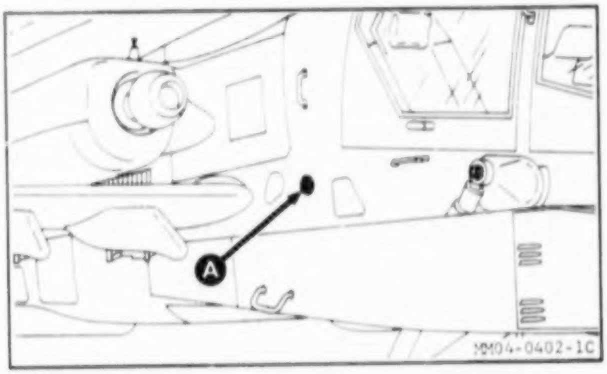
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed



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10-2-33. FORWARD FUEL CELL FUEL/DEFUEL VALVE REMOVAL/INSTALLATION (cont) 10-2-33

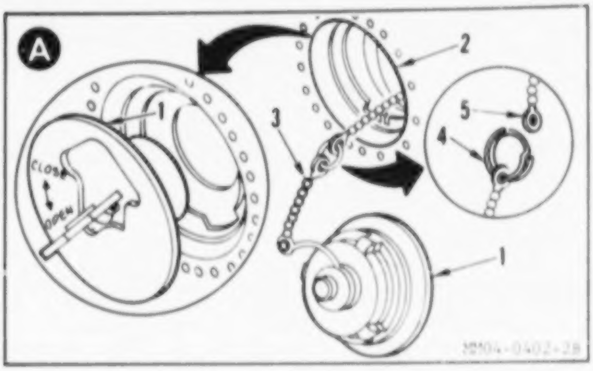
A. REMOVAL

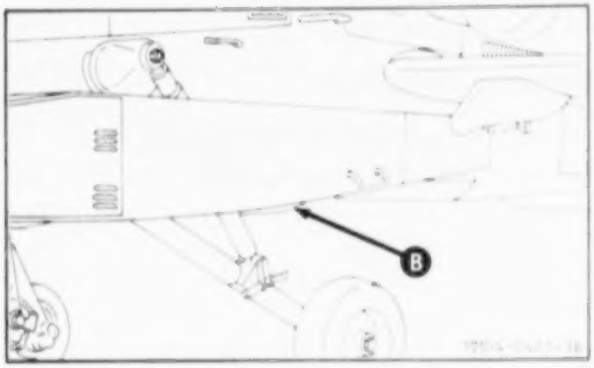
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



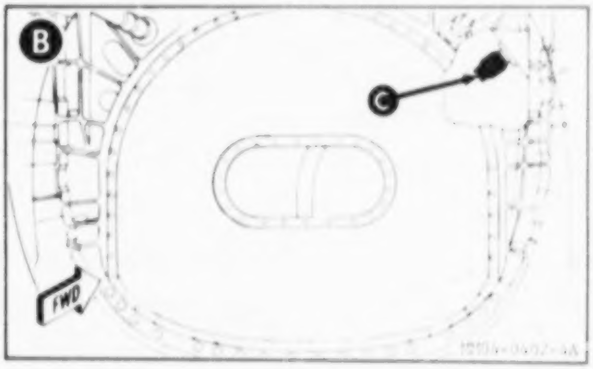


1. **Remove gravity fill fuel cap (1) from gravity fill port (2).**

   a. Turn cap (1) to open position.

   b. Pull cap (1) out of port (2).

2. **Disconnect filter cap chain (3).** Spread spiral ring (4) and turn until chain end (5) is free.

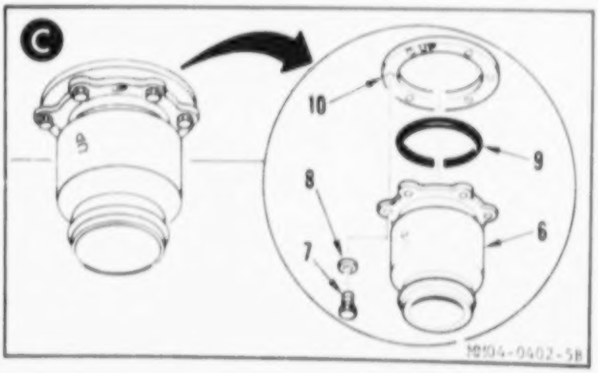


3. **Remove fuel/defuel check valve (6) from forward fuel cell.**

   a. Remove six bolts (7) and washers (8).

   b. Remove and discard packing (9) from mounting pad (10).

   c. Remove valve (6) from fuel cell.



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10-2-33. FORWARD FUEL CELL FUEL/DEFUEL VALVE REMOVAL/INSTALLATION (cont) 10-2-33

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

D. INSTALLATION

1. Install check valve (6).

   a. Lubricate new packing (9). Use petrolatum (E16).

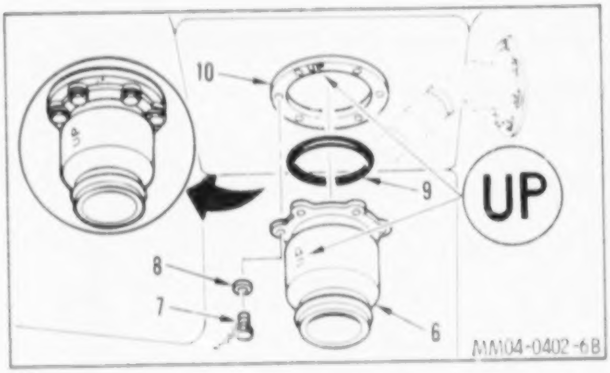
   b. Install packing (9) on mounting pad (10).

NOTE

Valve side marked **UP** must be installed up.

   c. Aline mounting holes of valve (6) with mounting holes of mounting pad (10).

   d. Install six washers (8) and bolts (7).



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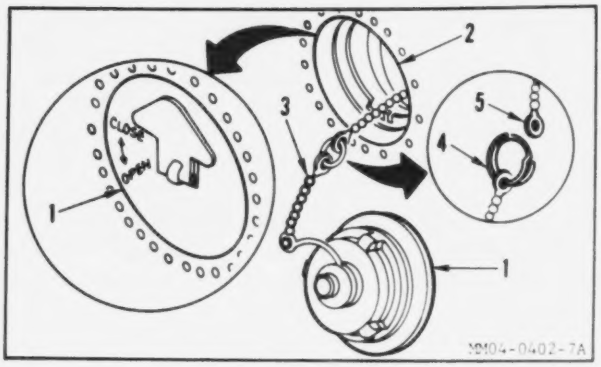
10-2-33. FORWARD FUEL CELL FUEL/DEFUEL VALVE REMOVAL/INSTALLATION (cont) 10-2-33

2. **Connect filler cap chain (3).**
   a. Spread and insert spiral ring (4) through chain end (5).
   b. Turn ring (4) until it is fully in chain end (5).
3. **Install cap (1) in port (2).**
   a. Push cap (1) into port (2).
   b. Turn cap (1) to close position.
4. **Inspect (TI).**
5. **Install forward fuel cell aft cover and access panel** (para 10-2-20).



END OF TASK

10-2-34. FORWARD AND AFT FUEL/DEFUEL VALVE CABLE DISASSEMBLY/ASSEMBLY 10-2-34

This task covers: A. DISASSEMBLY B. CLEANING C. INSPECTION D. ASSEMBLY

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Personnel Required:

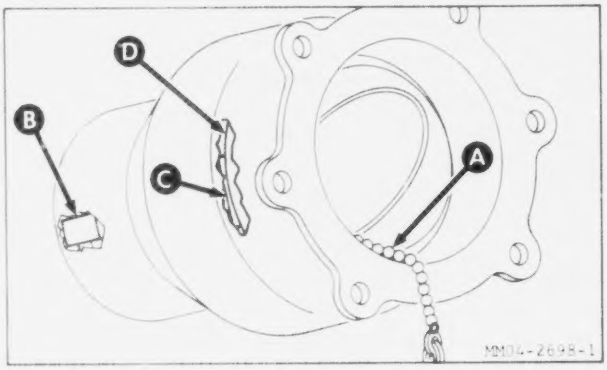
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

Materials/Parts:

(E32) Cloth, Lint-Free

NOTE

This task is typical for forward or aft fuel/defuel check valve cable.



10-2-34. FORWARD AND AFT FUEL/DEFUEL VALVE CABLE DIASSEMBLY/ASSEMBLY (cont) 10-2-34

A. DISASSEMBLY

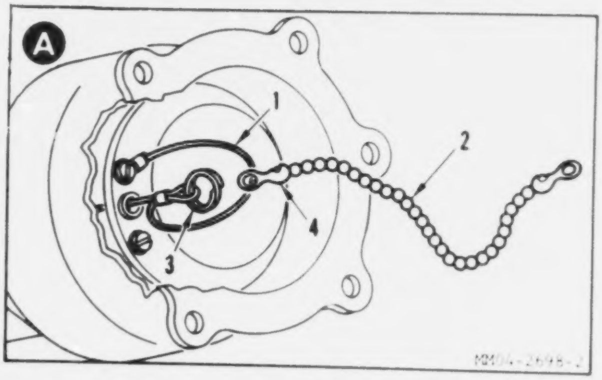
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

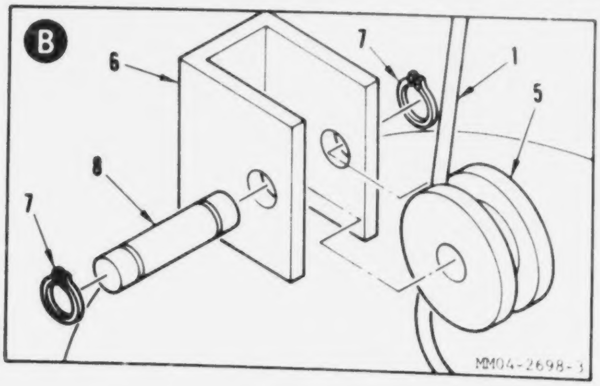
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove check valve assembly cable (1) from chain (2).**
   a. Spread spiral ring (3) and turn until cable end (4) is free.
   b. Remove cable (1) from chain (2).



2. **Remove pulley (5) from check valve (6) support.**
   a. Remove two retaining rings (7) from pulley shaft (8).
   b. Remove pulley shaft (8) and pulley (5) from check valve (6) support.
   c. Remove cable (1) from pulley (5).



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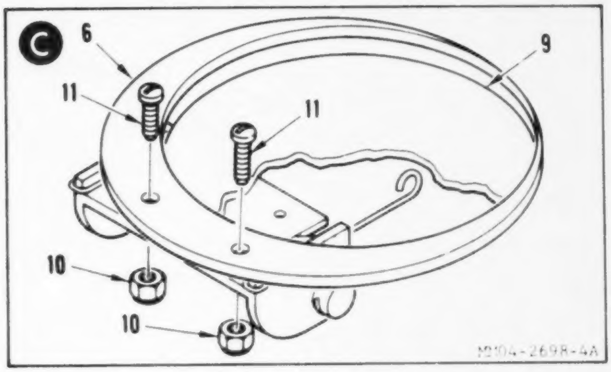
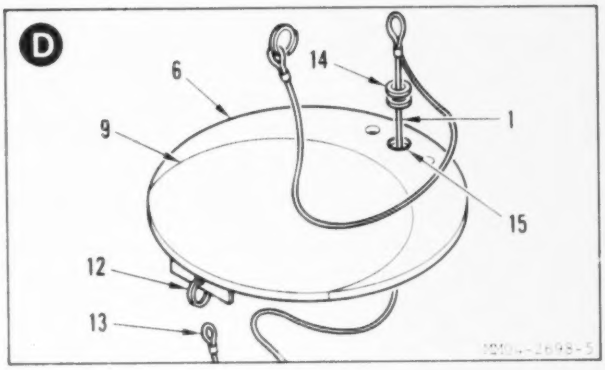
10-2-34. FORWARD AND AFT FUEL/DEFUEL VALVE CABLE DISASSEMBLY/ASSEMBLY (cont) 10-2-34



3. **Remove flapper (9) from check valve (6).**
   a. Hold two nuts (10).
   b. Remove two screws (11).
   c. Remove flapper (9) from check valve (6).



4. **Remove cable (1) from flapper (9) and check valve (6).**
   a. Spread spiral ring (12) and turn until cable end (13) is free.
   b. Remove cable end (13) from flapper (9).
   c. Remove cable grommet (14) from check valve (6).
   d. Pull cable (1) through grommet mounting hole (15).

B. **CLEANING**

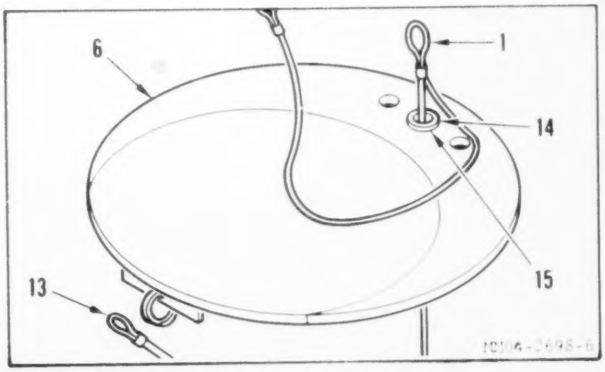
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks, gouges, or broken parts (para 10-2-1).

D. **ASSEMBLY**

1. **Install cable (1) in check valve (6).**
   a. Push cable end (13) through grommet hole (15).
   b. Install grommet (14) in check valve (6).



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10-2-34. FORWARD AND AFT FUEL/DEFUEL VALVE CABLE DISASSEMBLY/ASSEMBLY (cont) 10-2-34

2. **Install flapper (9) in check valve (6).**

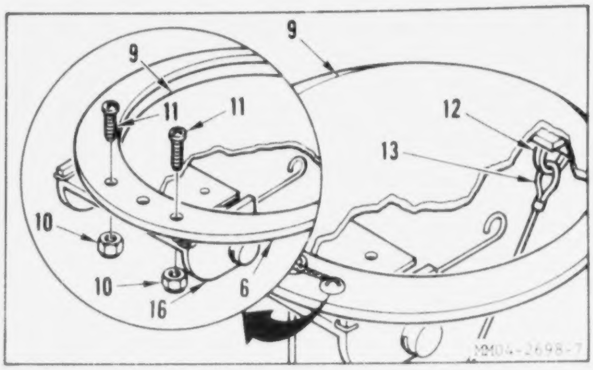
   a. Spread spiral ring (12).

   b. Connect cable end (13) to spiral ring (12).

   c. Turn spiral ring (12) until cable end (13) is secured to ring (12).

   d. Position flapper (9) on flapper support (16).

   e. Install two screws (11) and nuts (10).



3. **Install pulley (5) in check valve (6).**

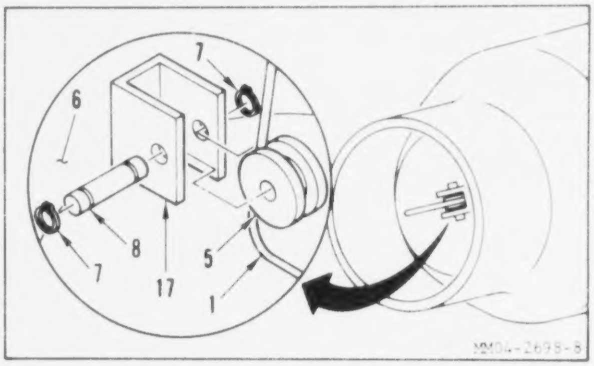
   a. Slide pulley shaft (8) part way into pulley support (17).

   b. Slide pulley (5) on pulley shaft (8).

   c. Pull cable (1) down to engage pulley (5).

   d. Push pulley shaft (8) into pulley support (17).

   e. Install two retaining rings (7) on pulley shaft (8).



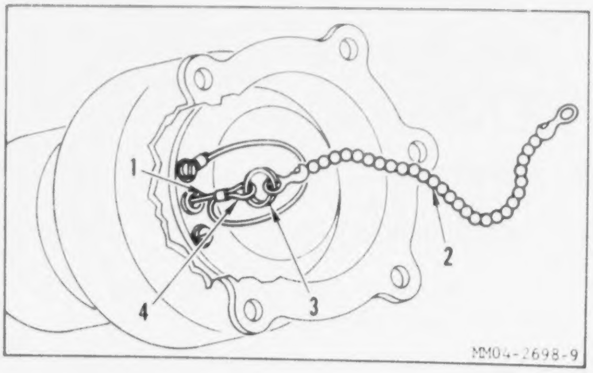
4. **Install cable (1) on chain (2).**

   a. Spread spiral ring (3).

   b. Connect cable end (4) to spiral ring (3).

   c. Turn spiral ring (3) until cable end (4) is secured to ring (3).

5. **Inspect (TI).**



END OF TASK

10-2-35. FORWARD FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT 10-2-35

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

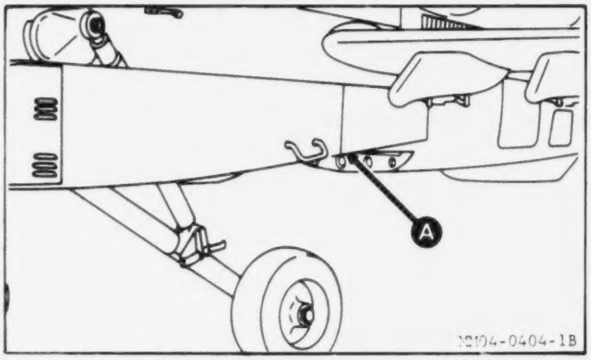
67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft access panel and aft cover removed



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10-2-35. FORWARD FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-35

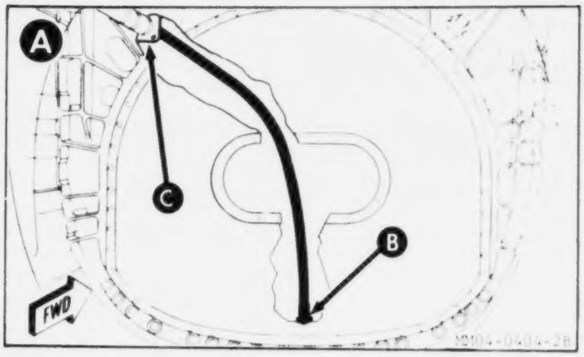
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

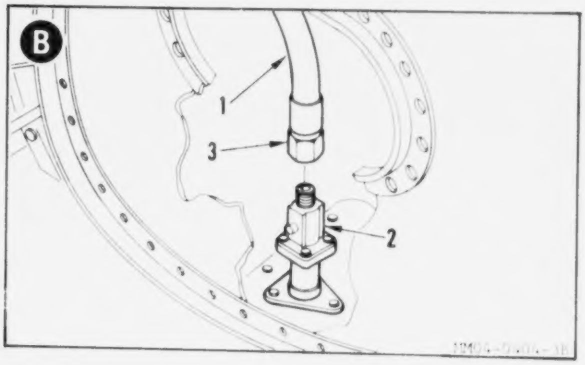
Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect forward fuel cell engine fuel supply hose (1) from forward fuel cell check/thermal relief valve (2).**

   a. Hold valve (2).

   b. Disconnect hose nut (3) from valve (2).

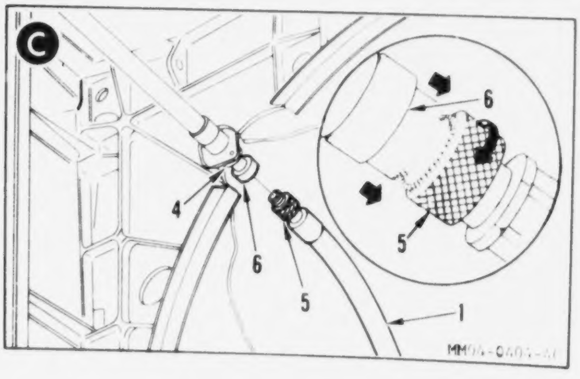


2. **Disconnect hose (1) from forward fuel cell engine fuel supply breakaway valve (4).**

   a. Pull sleeve (5) away from locking teeth on adapter (6).

   b. Turn sleeve (5) until it clears adapter (6).

   c. Remove hose (1).



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10-2-35. FORWARD FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-35

B. CLEANING

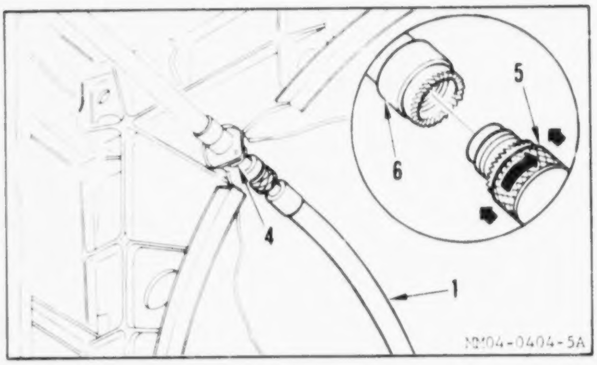
Wipe relief valve, breakaway valve, and surrounding surfaces with a clean lint-free cloth (E32).

C. INSPECTION

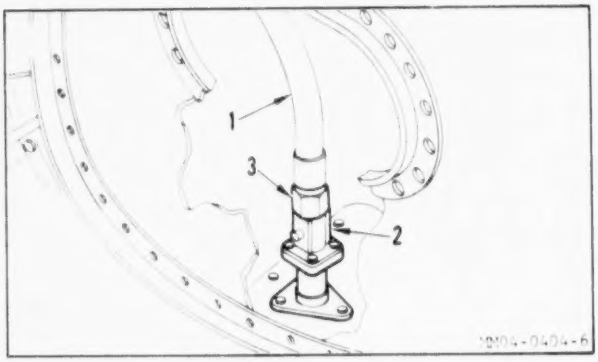
Check relief valve and breakaway valve for nicks, dents, and damaged threads (para 10-2-1).

D. INSTALLATION

1. Connect hose (1) to valve (4).
   a. Install sleeve (5) on adapter (6). Turn sleeve (5) until seated and locking teeth engage adapter (6).



2. Connect hose (1) to relief valve (2).
   a. Lubricate threads of valve (2). Use petrolatum (E16).
   b. Install hose nut (3) on valve (2).
   c. Hold valve (2).
   d. Tighten hose nut (3).



3. Inspect (TI).
4. Install forward fuel cell aft access panel and aft cover (para 10-2-20).
5. Perform fuel crossfeed/boost system operational check (TM 55-1520-238-T).

END OF TASK

10-2-36. FORWARD FUEL CELL REFUELING HOSE REPLACEMENT 10-2-36

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Seal
	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

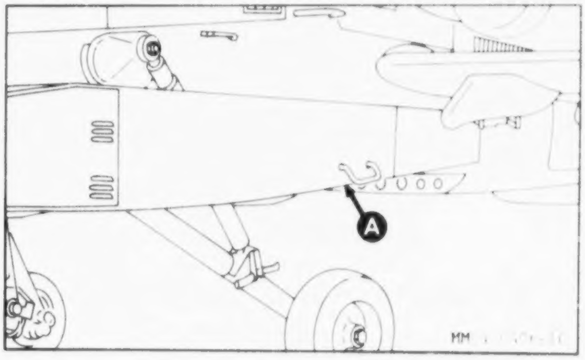
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-20	Forward fuel cell aft cover panel and access panel removed



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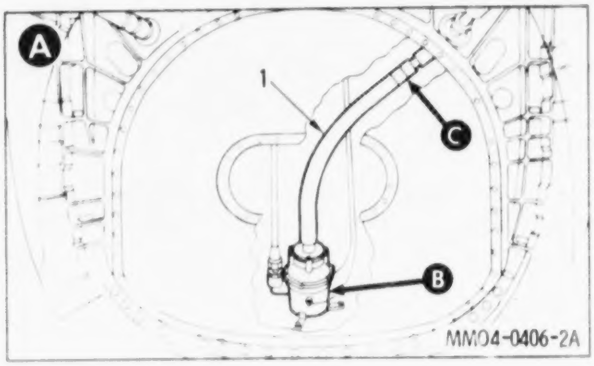
10-2-36. FORWARD FUEL CELL REFUELING HOSE REPLACEMENT (cont) 10-2-36

A. REMOVAL

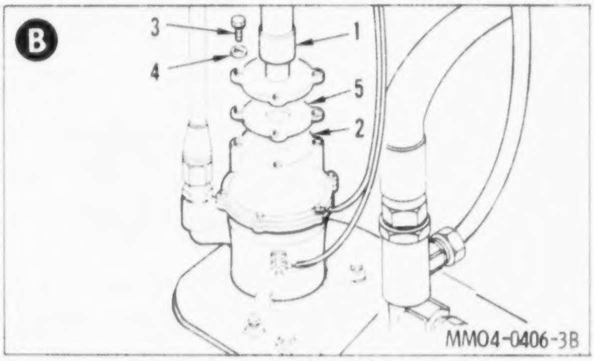


WARNING

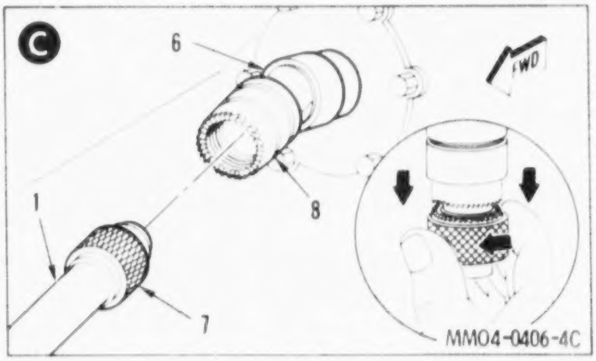
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect refueling hose (1) from shutoff valve (2).**
   a. Remove four bolts (3) and washers (4).
   b. Remove hose (1) from valve (2).
   c. Remove and discard seal (5).



2. **Disconnect hose (1) from breakaway valve (6).**
   a. Pull ratchet sleeve (7) away from fitting end (8) to release locking teeth.
   b. Turn sleeve (7) until it is free of fitting end (8).
   c. Remove hose (1) from fuel cell.

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

GO TO NEXT PAGE

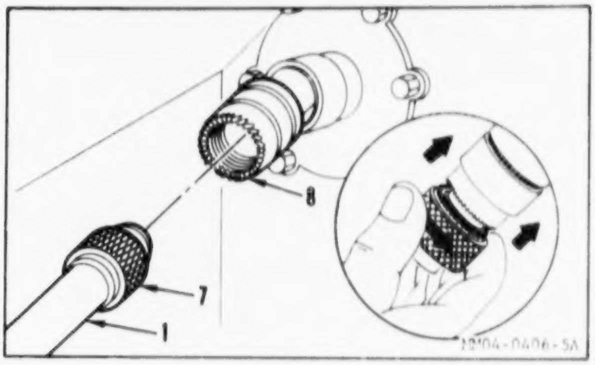
10-2-36. FORWARD FUEL CELL REFUELING HOSE REPLACEMENT (cont) 10-2-36

C. INSPECTION

1. **Check threads of ratchet sleeve for damage and missing teeth** (para 10-2-1).

2. **Check shutoff valve connector for cracks, nicks, or scratches** (para 10-2-1).

D. INSTALLATION

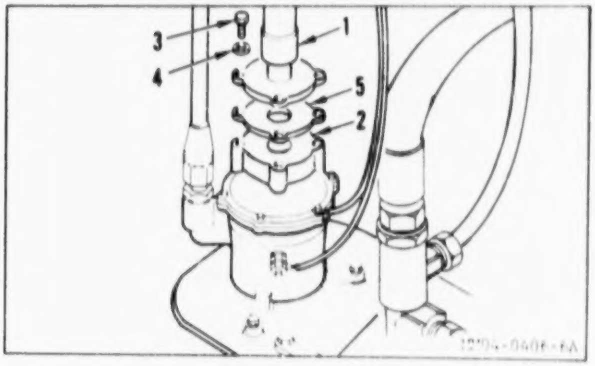


1. **Install hose (1).**

   a. Lubricate threads of ratchet sleeve (7). Use petrolatum (E16).

   b. Connect ratchet sleeve (7) to fitting end (8).

   c. Turn ratchet sleeve (7) until seated and locking teeth engage with fitting end (8).



2. **Connect hose (1) to shutoff valve (2).**

   a. Lubricate new seal (5) on both sides. Use petrolatum (E16).

   b. Place seal (5) on valve (2).

   c. Place flange of hose (1) on valve (2). Aline mounting bolt holes.

   d. Install four washers (4) and bolts (3).

3. **Inspect (TI).**

4. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

5. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-37. FORWARD FUEL CELL VENT TUBE REPLACEMENT 10-2-37

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

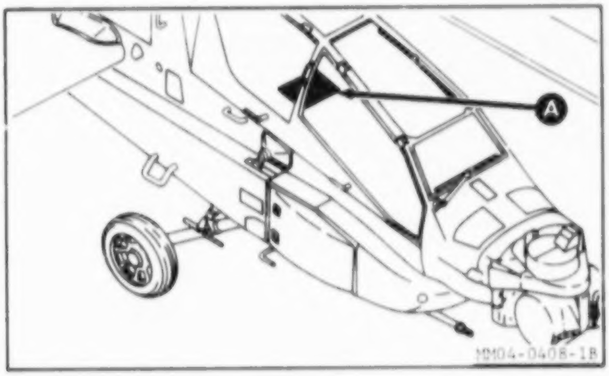
67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-3-12	Pilot seat removed
10-2-2	Fuel system safety precautions observed
10-2-20	Forward fuel cell aft access panel and aft cover removed



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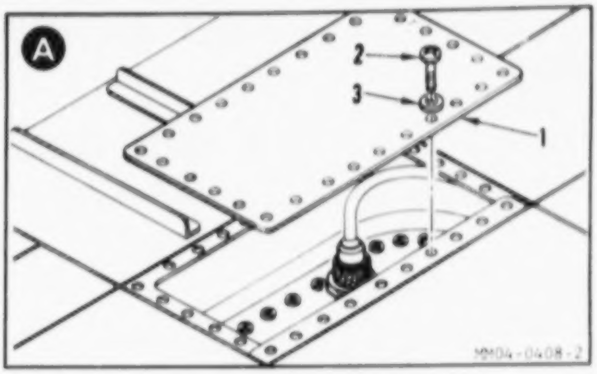
10-2-37. FORWARD FUEL CELL VENT TUBE REPLACEMENT (cont) 10-2-37



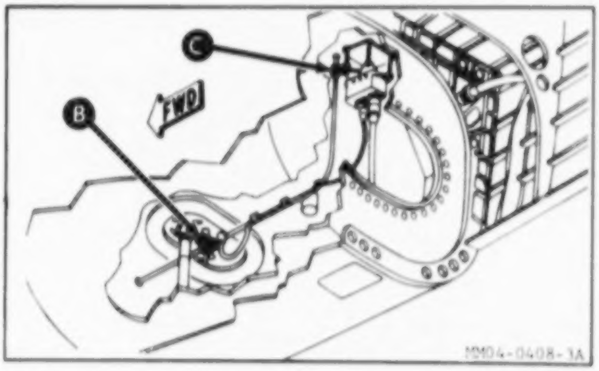
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **In pilot station, remove access panel (1).**

   a. Remove 28 screws (2) and washers (3).

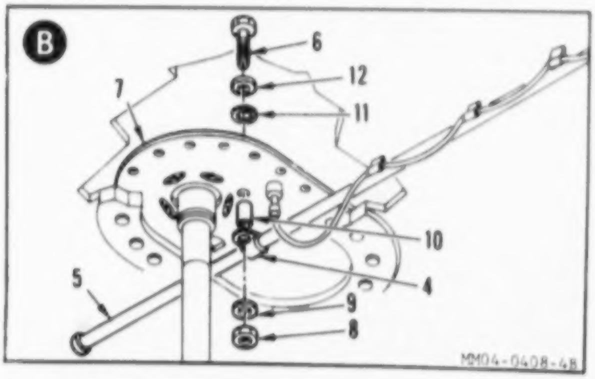
   b. Remove panel (1).

2. **Remove forward vent tube clamp (4) from vent tube (5).**

   a. One person hold bolt (6) on fuel cell access panel (7) in pilot station.

   b. Second person remove nut (8), washer (9), spacer (10), and clamp (4) from tube (5) in fuel cell.

   c. Remove bolt (6), washer (11), and packing with retainer (12), from panel (7). Discard packing with retainer.



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10-2-37. FORWARD FUEL CELL VENT TUBE REPLACEMENT (cont) 10-2-37

3. Remove aft vent tube clamp (13) from vent tube (5).

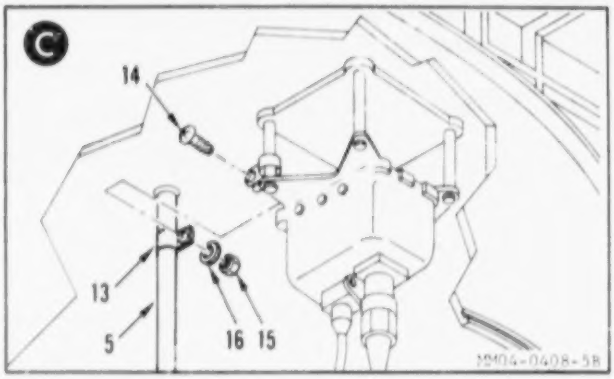
a. Hold screw (14).

b. Remove nut (15) and washer (16).

c. Remove screw (14) from clamp (13).

d. Remove clamp (13) from tube (5).

e. Remove tube (5) from fuel cell.



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for nicks, dents, damaged threads, and damage (para 10-2-1).

D. INSTALLATION

1. Install vent tube (5) and forward vent tube clamp (4).

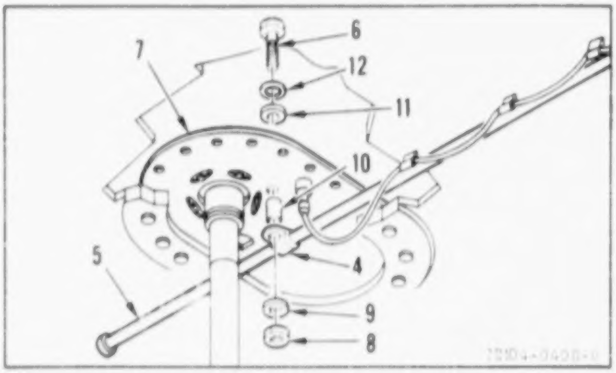
a. In forward fuel cell, one person install clamp (4) on tube (5).

b. Lubricate new packing with retainer (12). Use petrolatum (E16).

c. Install washer (11), new packing with retainer (12), and bolt (6) into hole of access panel (7).

d. Inside forward fuel cell, install spacer (10) and clamp (4) on bolt (6).

e. Install washer (9) and nut (8). Do not tighten nut (8).



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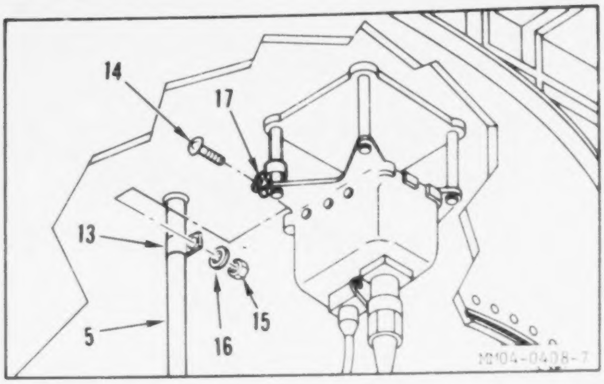
10-2-37. FORWARD FUEL CELL VENT TUBE REPLACEMENT (cont) 10-2-37

2. **Install vent tube (5) and aft vent tube clamp (13).**

   a. Install clamp (13) on tube (5).

   b. Install screw (14) through clamps (13) and (17).

   c. Install washer (16) and nut (15) on screw (14). Do not tighten nut (15).



3. **Aline and secure vent tube (5).**

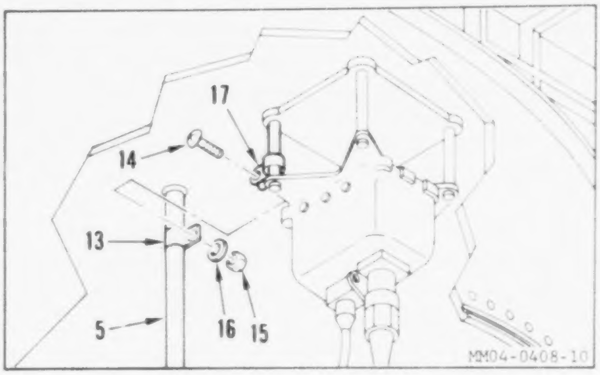
   a. Aline tube (5) by sliding tube (5) up or down in clamp (13) until tube is parallel with top of fuel cell.

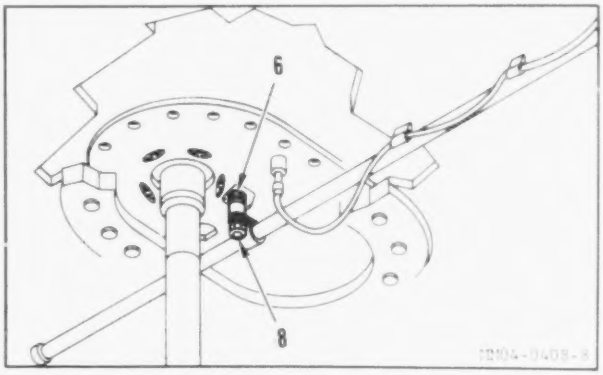
   b. Hold nut (15).

   c. Tighten screw (14).

   d. One person hold bolt (6) in pilot station.

   e. Second person tighten nut (8) in fuel cell.





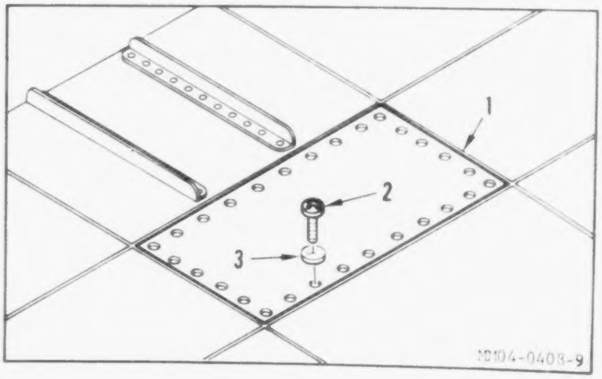
4. **Inspect (TI).**

5. **Install access cover (1).** Install 28 washers (3) and screws (2).

6. **Install forward fuel cell aft access panel and aft cover** (para 10-2-20).

7. **Refuel forward fuel cell** (para 1-5-5).

8. **Install pilot seat** (para 2-3-12).



END OF TASK

10-2-38. APU FUEL PUMP REMOVAL/INSTALLATION 10-2-38

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (3)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

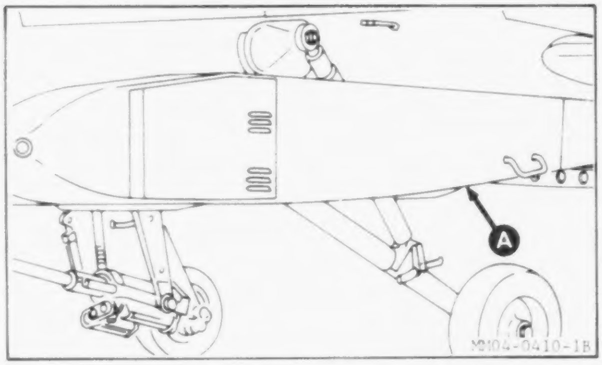
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.

2. Open FUEL BST circuit breaker on pilot forward circuit breaker panel.



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10-2-38. APU FUEL PUMP REMOVAL/INSTALLATION (cont) 10-2-38

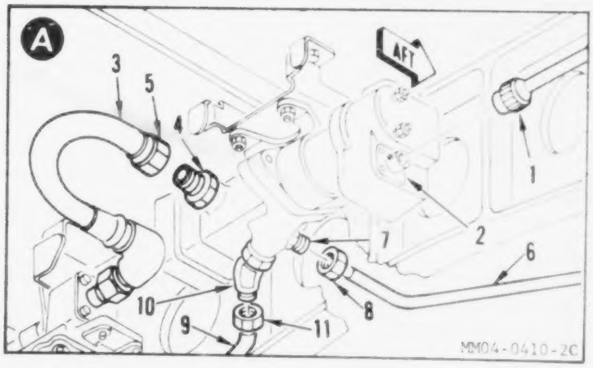
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

3. **Disconnect connector P941 (1) from connector L44J1 (2).**



4. **Disconnect APU fuel pump inlet tube (3).**

    a. Hold union (4).

    b. Remove tube nut (5) from union (4).

5. **Disconnect APU fuel pump outlet tube (6).**

    a. Hold union (7).

    b. Remove tube nut (8) from union (7).

6. **Disconnect APU fuel pump drain tube (9).**

    a. Hold elbow (10).

    b. Remove tube nut (11) from elbow (10).

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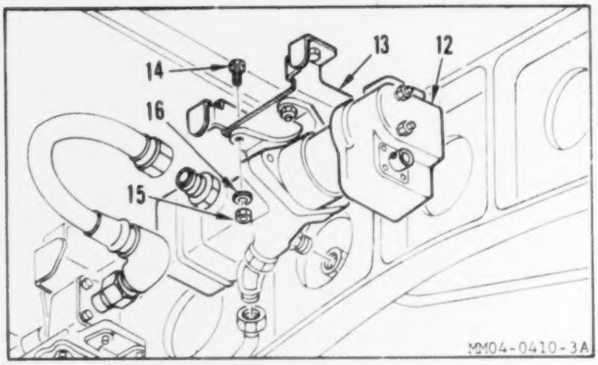
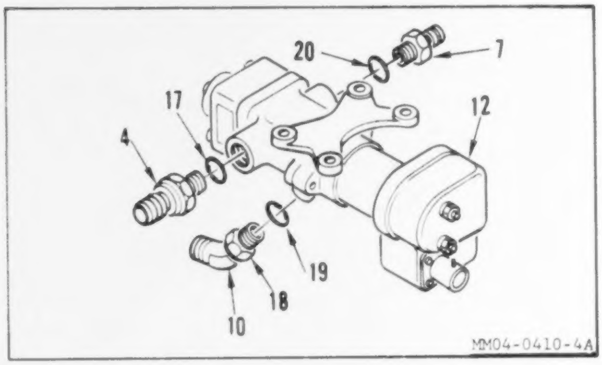
10-2-38. APU FUEL PUMP REMOVAL/INSTALLATION (cont) 10-2-38



7. **Remove fuel pump (12) from mounting bracket (13).**

    a. Hold four bolts (14).

    b. Remove four nuts (15) and washers (16).



8. **Remove hardware from fuel pump (12).**

    a. Remove union (4).

    b. Remove and discard packing (15) from union (4).

    c. Hold elbow (10).

    d. Loosen jam nut (18).

    e. Remove elbow (10).

    f. Remove and discard packing (19) from elbow (10).

    g. Remove union (7).

    h. Remove and discard packing (20) from union (7).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for nicks, dents, cracks, and damaged threads (para 10-2-1).

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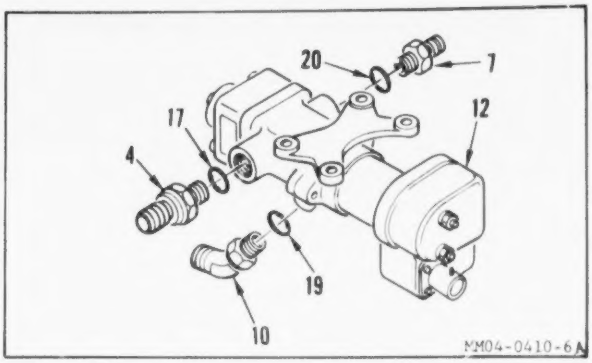
10-2-38. APU FUEL PUMP REMOVAL/INSTALLATION (cont) 10-2-38

D. INSTALLATION



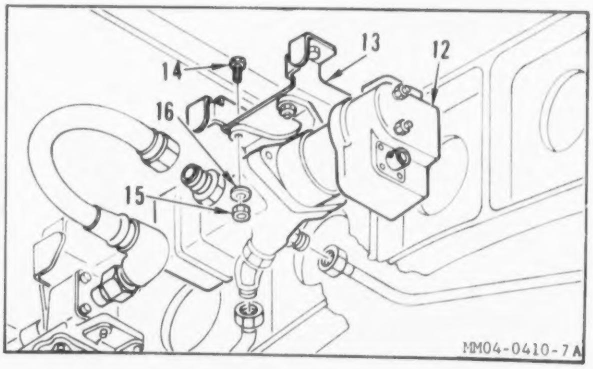
1. **Install unions (4) and (7) and elbow (10) in pump (12).**
   a. Lubricate threads of unions (4) and (7) and elbow (10). Use petrolatum (E16).
   b. Lubricate three new packings (17), (19), and (20). Use petrolatum (E16).
   c. Install new packing (20) on union (7).
   d. Install union (7) in pump (12).
   e. Install new packing (17) on union (4).
   f. Install union (4) in pump (12).

NOTE

Do not tighten elbow at this time.

   g. Install new packing (19) on elbow (10).
   h. Install elbow (10) in pump (12).

2. **Install fuel pump (12) on mounting bracket (13).**
   a. Install four bolts (14), washers (16) and nuts (15).
   b. Hold four bolts (14).
   c. Tighten four nuts (15).



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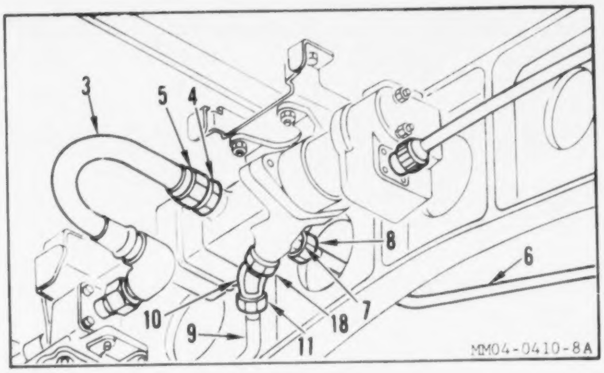
10-2-38. APU FUEL PUMP REMOVAL/INSTALLATION (cont) 10-2-38



3. **Connect tube (6) to union (7).**

   a. Lubricate threads of union (7). Use petrolatum (E16).

   b. Hold union (7).

   c. Tighten tube nut (8).

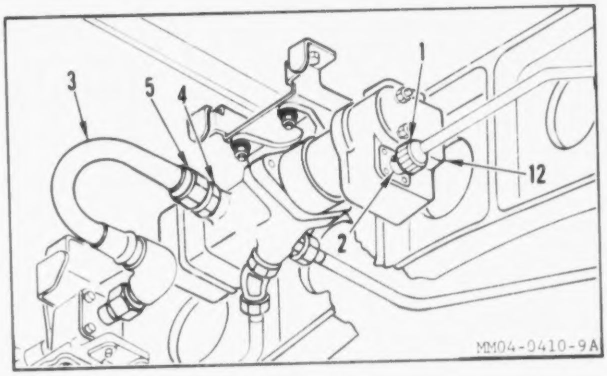
4. **Connect tube (9) to elbow (10).**

   a. Lubricate threads of elbow (10). Use petrolatum (E16).

   b. Hold elbow (10).

   c. Tighten jam nut (18).

   d. Tighten tube nut (11).



5. **Connect tube (3) to union (4).**

   a. Lubricate threads of union (4). Use petrolatum (E16).

   b. Hold union (4).

   c. Tighten tube nut (5).

6. **Attach connector P941 (1) to connector L44J1 (2) on fuel pump (12).**

7. **Inspect (TI).**

8. **Perform auxiliary power unit operational check** (TM 55-1520-238-T).

9. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-39. APU FUEL PUMP INLET TUBE REPLACEMENT 10-2-39

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

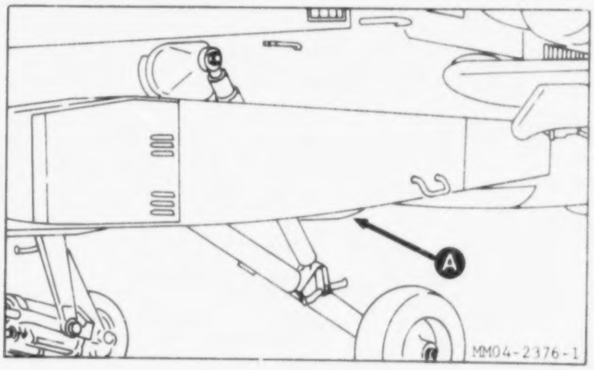
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 9-1090-208-23
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
TM 9-1090-208-23	Ammunition storage magazine removed



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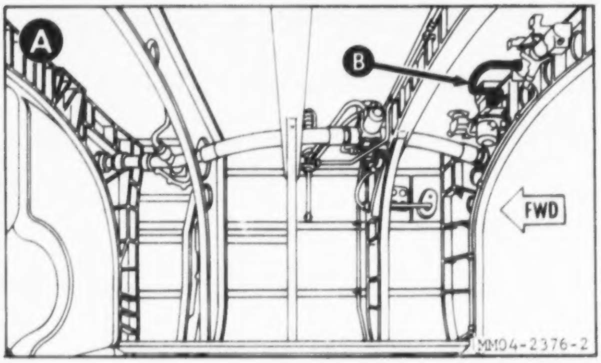
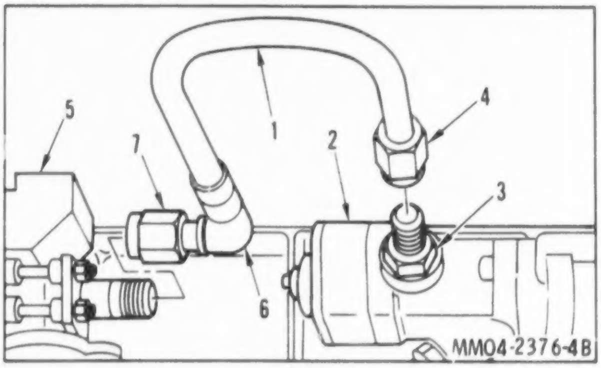
10-2-39. APU FUEL PUMP INLET TUBE REPLACEMENT (cont) 10-2-39





A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. Disconnect APU fuel pump inlet tube (1) from APU fuel pump (2).
   a. Hold fitting (3).
   b. Disconnect tube nut (4) from pump (2).
2. Disconnect tube (1) from APU shutoff valve (5).
   a. Hold elbow (6).
   b. Disconnect tube nut (7) from valve (5).

B. CLEANING

Wipe APU fuel pump and APU shutoff valve with a clean lint-free cloth (E32).

C. INSPECTION

Check APU fuel pump and APU shutoff valve for damaged threads (para 10-2-1).

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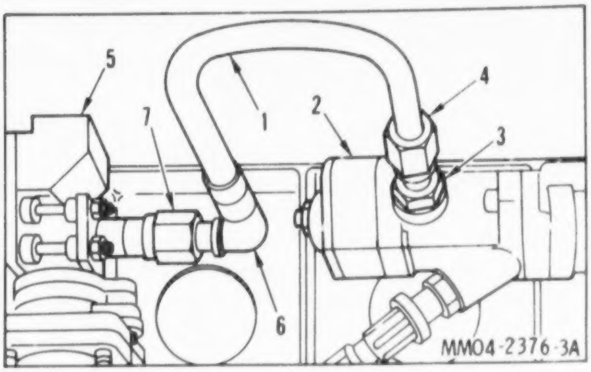
10-2-39. APU FUEL PUMP INLET TUBE REPLACEMENT (cont) 10-2-39



D. INSTALLATION

1. **Connect tube (1) valve (5).**
   - a. Lubricate threads of valve (5). Use petrolatum (E16).
   - b. Hold elbow (6).
   - c. Connect nut (7) to valve (5).
2. **Connect tube (1) to pump (2).**
   - a. Lubricate threads of pump (2). Use petrolatum (E16).
   - b. Hold fitting (3).
   - c. Connect tube nut (4) to pump (2).
3. **Inspect (TI).**
4. **Perform auxiliary power unit operational check** (TM 55-1520-238-T).
5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-40. APU FUEL PUMP OUTLET TUBE REPLACEMENT 10-2-40

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (5)
(E10)	Sealant, Adhesive
(E16)	Petrolatum
(E32)	Cloth, Lint-free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23
TM 55-1500-204-25/1

Equipment Conditions:

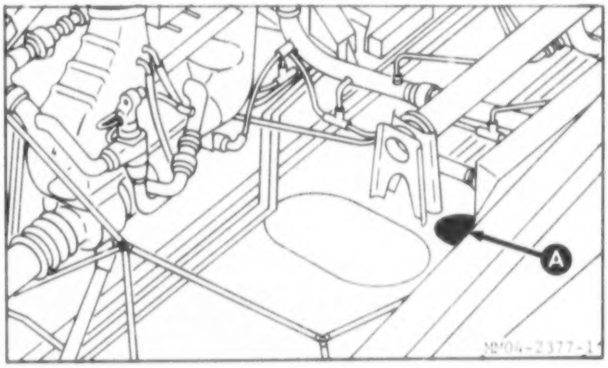
Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed
2-3-10	Catwalk removed
15-2-26	APU removed

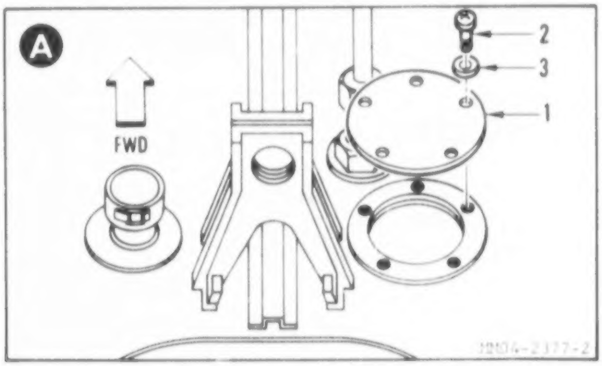
A. REMOVAL

1. **Remove access panel (1).**

   a. Remove fillet seal from around panel (1) and transmission deck.

   b. Remove five screws (2) and five packings with retainer (3) from panel (1). Discard packings with retainer.





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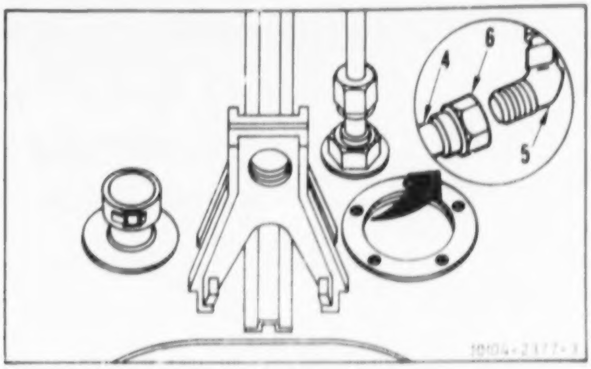
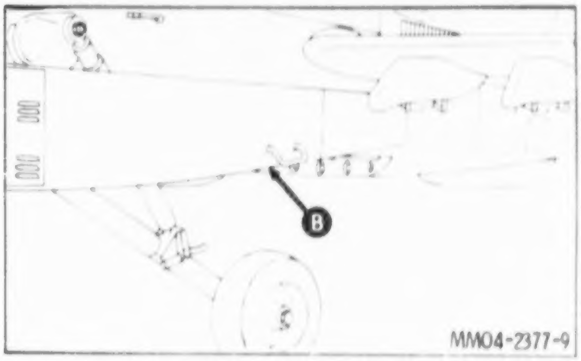
10-2-40. APU FUEL PUMP OUTLET TUBE REPLACEMENT (cont) 10-2-40

WARNING

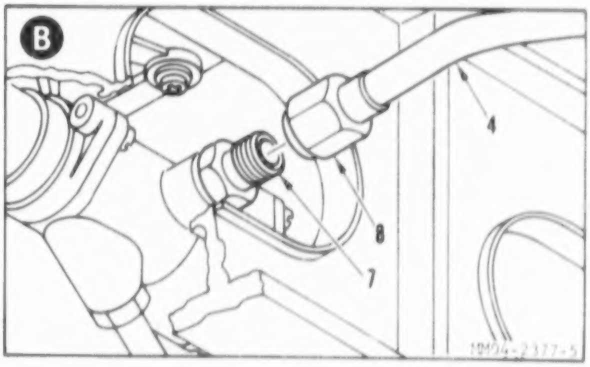
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



2. **Disconnect APU fuel pump tube (4) from elbow (5).**
   a. Hold elbow (5).
   b. Disconnect tube nut (6) from elbow (5).



3. **Disconnect tube (4) from union (7).**
   a. Hold union (7).
   b. Disconnect tube nut (8) from union (7).

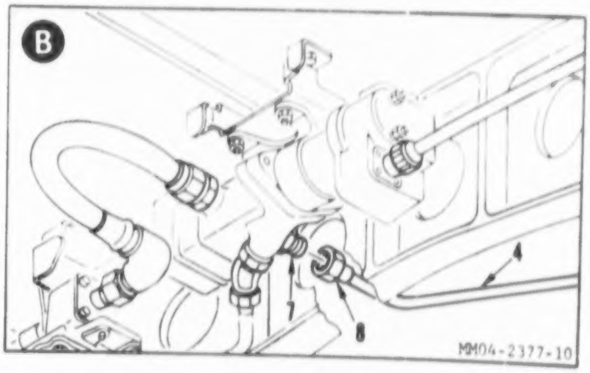


B. **CLEANING**

Wipe all removed and attaching parts with a lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, damaged threads, and other damage (para 10-2-1).



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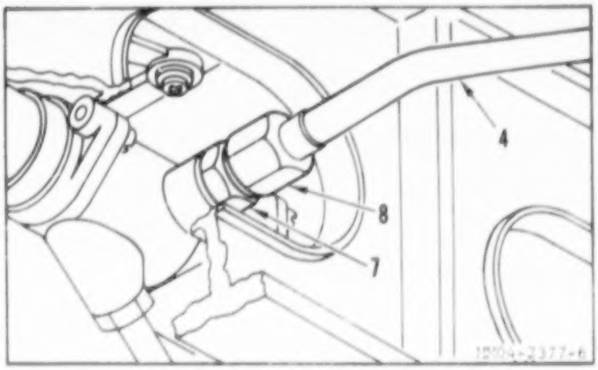
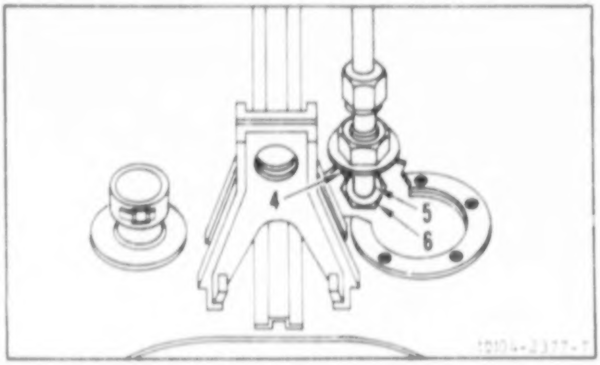
10-2-40. APU FUEL PUMP OUTLET TUBE REPLACEMENT (cont) 10-2-40

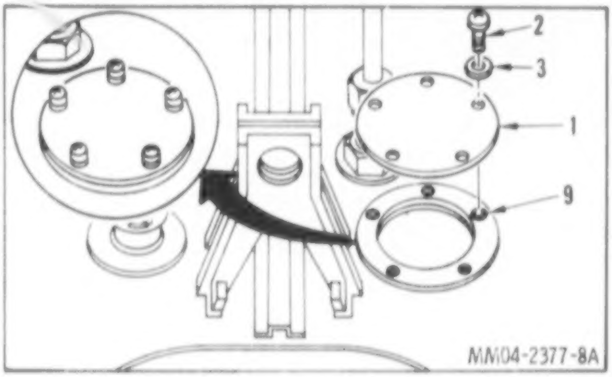
D. INSTALLATION



1. **Connect tube (4) to union (7).**
   a. Lubricate threads of union (7). Use petrolatum (E16).
   b. Hold union (7).
   c. Connect nut (8) to union (7).



2. **Connect tube (4) to elbow (5).**
   a. Lubricate threads of elbow (5). Use petrolatum (E16).
   b. Hold elbow (5).
   c. Connect nut (6) to elbow (5).



3. **Install access door (1).**
   a. Position door (1) on mounting holes (9).
   b. Lubricate five packings with retainer (3). Use petrolatum (E16).
   c. Install five screws (2) through five packings with retainer (3) and door (1).
   d. Apply sealant (E10) as fillet seal to access door (1) (TM 55-1500-204-25/1).
4. **Inspect (TI).**
5. **Perform auxiliary power unit operational check** (TM 55-1520-238-T).
6. **Install APU** (para 15-2-27).
7. **Install catwalk** (para 2-3-10).
8. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-41. APU FUEL SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-41

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

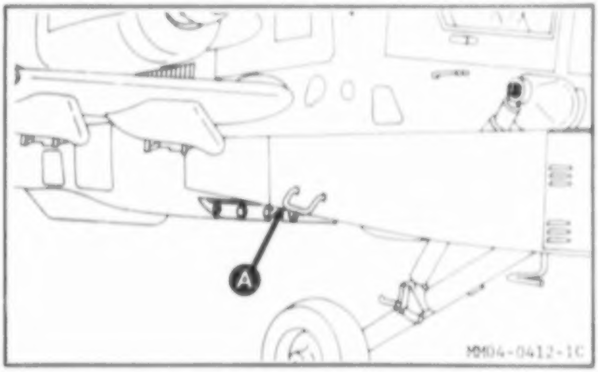
Equipment Conditions:

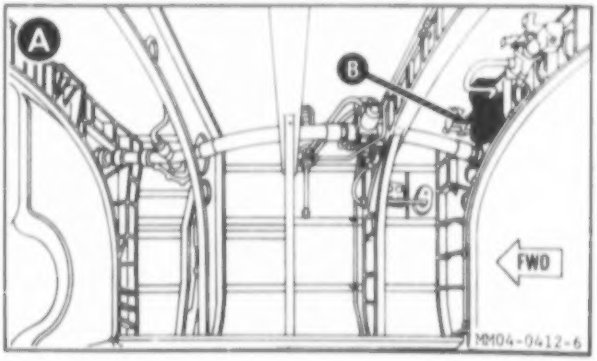
Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

A. **REMOVAL**

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL BST and APU START circuit breakers on pilot forward circuit breaker panel.**





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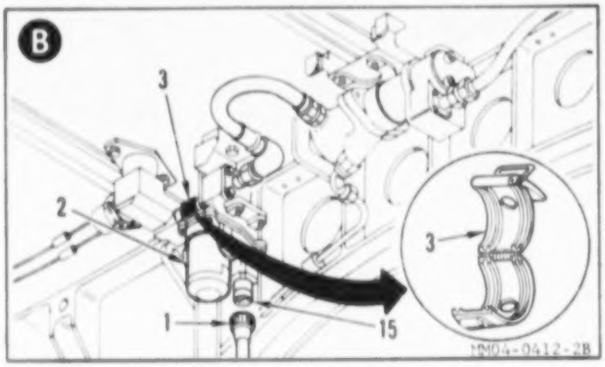
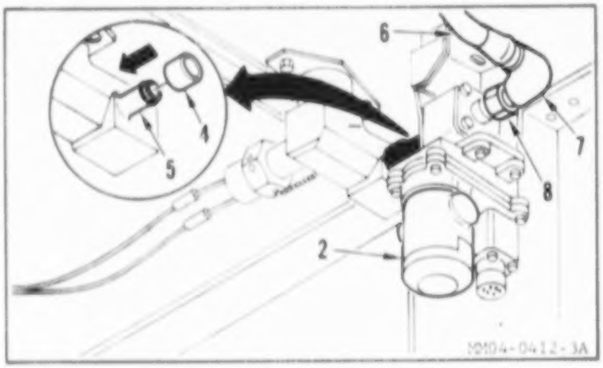
WARNING

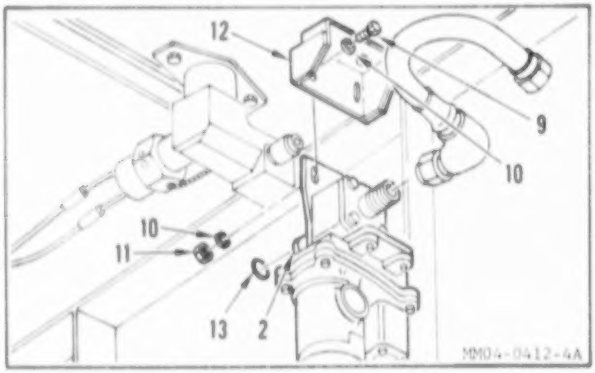
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



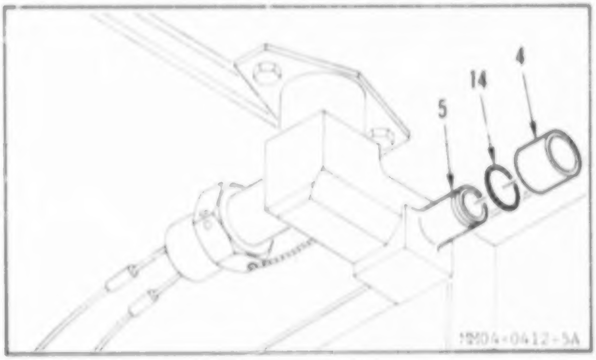
3. Detach connector P52 (1) from connector L20J1 (15) on APU fuel shutoff valve (2).
4. Unlatch and remove retainer (3) from valve (2).
5. Slide body (4) on fuel fitting (5) until body is free of valve (2).



6. Disconnect APU fuel inlet tube (6) from valve (2).
   a. Hold elbow (7).
   b. Disconnect tube nut (8) from valve (2).
7. Remove two bolts (9), four washers (10), and two nuts (11).
   a. Hold bolts (9).
   b. Remove two nuts (11) and washers (10).
   c. Remove two bolts (9) and washers (10).



8. Remove valve (2) from bracket (12).
9. Remove and discard packing (13) from valve (2).
10. Remove body fitting (4) from fitting (5).
11. Remove and discard packing (14).



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10-2-41. APU FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-41

B. CLEANING

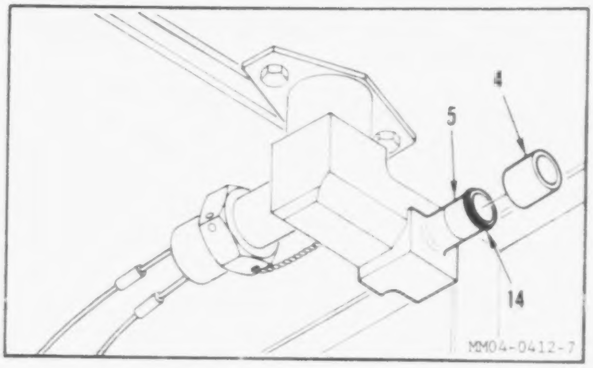
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

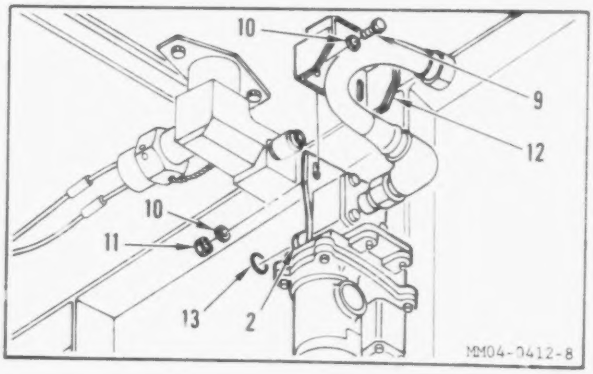
C. INSPECTION

Check valve, fitting, and hose for cracks, nicks, dents, and damaged threads (para 10-2-1).

D. INSTALLATION

1. **Install new packing (14) on fitting (5).**
   - a. Lubricate packing (14). Use petrolatum (E16).
   - b. Install packing (14) on fuel fitting (5).
2. **Slide body (4) over packing (14) until body (4) contacts fitting (5).**
3. **Install new packing (13) on valve (2).**
   - a. Lubricate packing (13). Use petrolatum (E16).
   - b. Install packing (13) on valve (2).
4. **Install valve (2) on mounting bracket (12).**
   - a. Install two bolts (9), four washers (10), and two nuts (11).
   - b. Hold bolts (9).
   - c. Tighten nuts (11).





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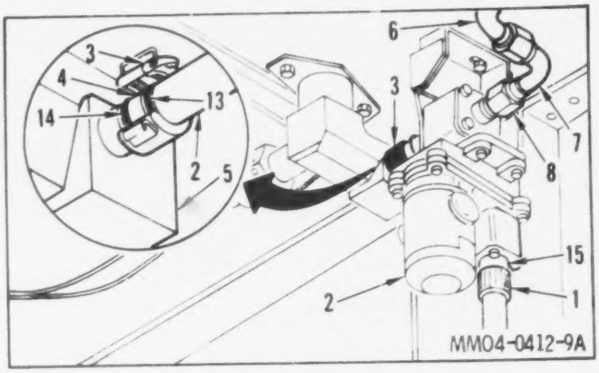
10-2-41. APU FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-41



5. **Install retainer (3) on valve (2) and fitting (5).**
   - a. Slide body (4) in place over packings (13) and (14).
   - b. Position retainer (3) around body (4).
   - c. Latch retainer (3). Ensure locking of safety spring.
6. **Connect tube (6) to valve (2).**
   - a. Hold elbow (7).
   - b. Connect nut (8) to valve (2).
7. **Attach connector P52 (1) to connector L20J1 (15) on fuel shutoff valve (2).**
8. Inspect (TI).
9. **Perform auxiliary power unit operational check** (TM 55-1520-238-T).
10. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-42. FUEL TRANSFER SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-42

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (4)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 9-1090-208-23
TM 55-1520-238-T

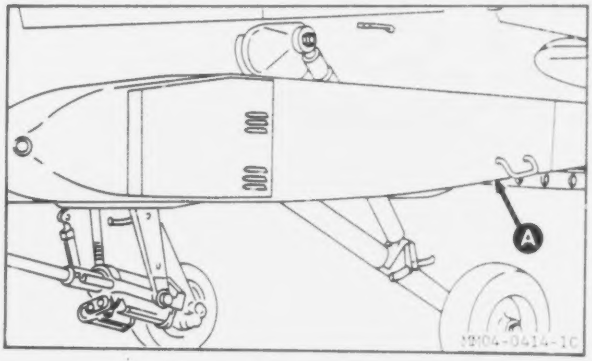
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defuled (SPA) method
10-2-2	Fuel system safety precautions observed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL FILL circuit breaker on pilot center circuit breaker panel.**



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10-2-42. FUEL TRANSFER SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-42

3. Detach electrical connector P251 (1) from connector L17J1 (2).

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

4. Unlatch and remove retainer (3).

5. Slide body (4) onto refuel hose (5).

6. Remove fuel transfer shutoff valve (6) from mounting bracket (7).

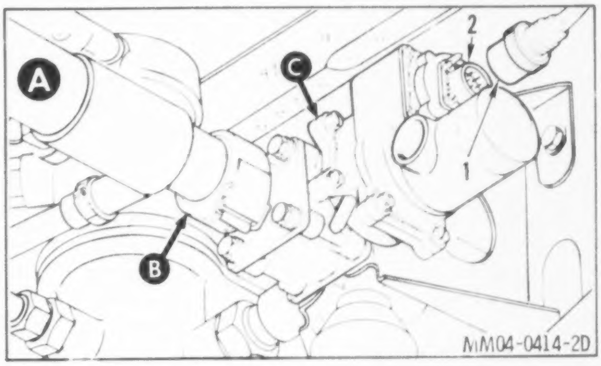
   a. Remove 4 bolts (8) and 12 washers (9).

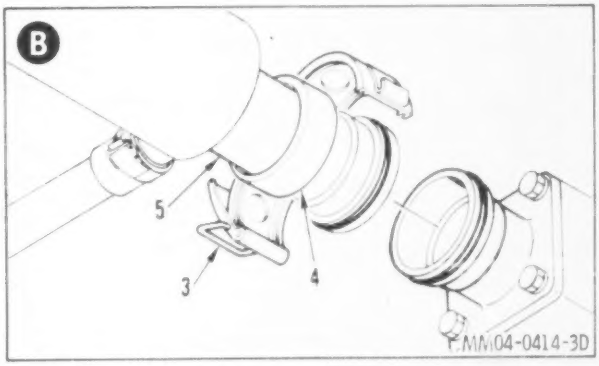
   b. Remove fitting (10) from valve (6).

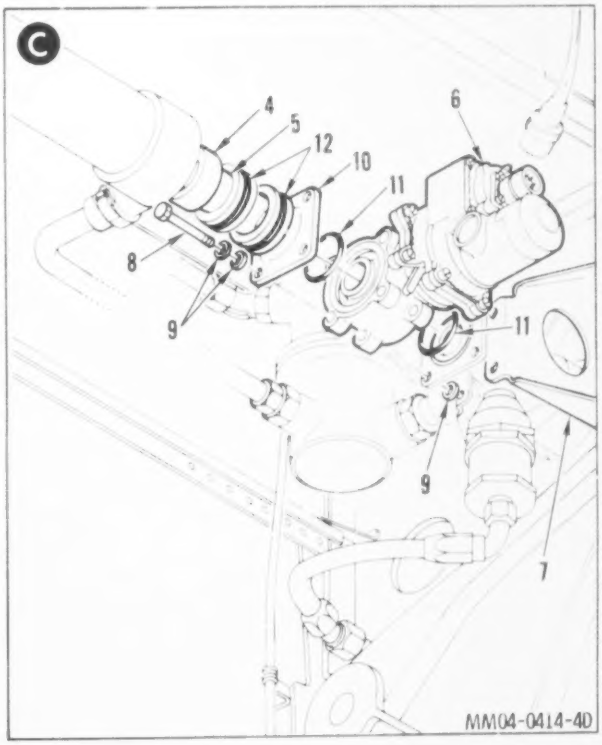
   c. Remove and discard two packings (11) from valve (6).

   d. Remove and discard two packings (12) from hose (5) and fitting (10).

   e. Remove body (4) from hose (5).







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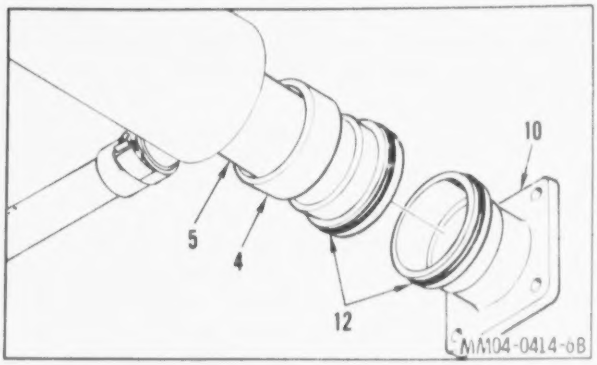
10-2-42. FUEL TRANSFER SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-42

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

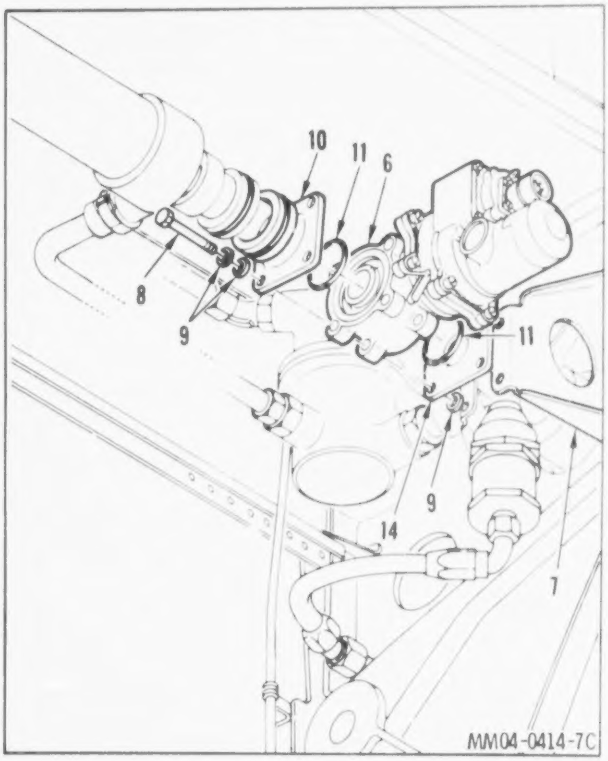
C. INSPECTION

Check refuel hose and transfer valve fitting for cracks, distortions, looseness, chafing, and excessive wear (para 10-2-1).

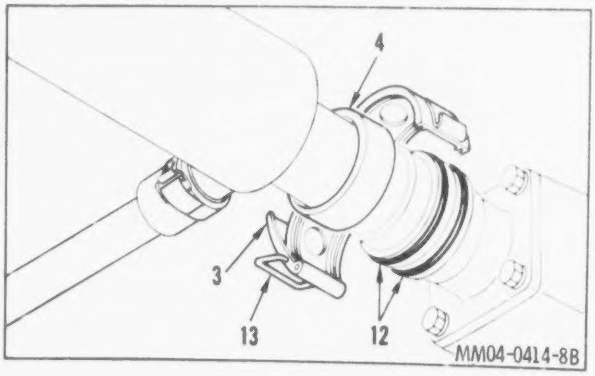


D. INSTALLATION

1. **Install body (4) on hose (5).**
2. **Lubricate two new packings (12).** Use petrolatum (E16).
3. **Install new packing (12) on hose (5).**
4. **Install new packing (12) on fitting (10).**
5. **Lubricate two new packings (11).** Use petrolatum (E16).
6. **Install two packings (11) in valve (6).**
7. **Position fitting (10) on valve (6).**
8. **Install fuel valve (6) on bracket (7).** Install bolt (8) through washers (9), fitting (10), valve (6), refuel hose fitting (14), washer (9) and bracket (7) four places.



9. **Install retainer (3).**
   a. Center body (4) over packings (12).
   b. Position retainer (3) around body (4).
   c. Latch retainer (3). Ensure locking of safety spring (13).



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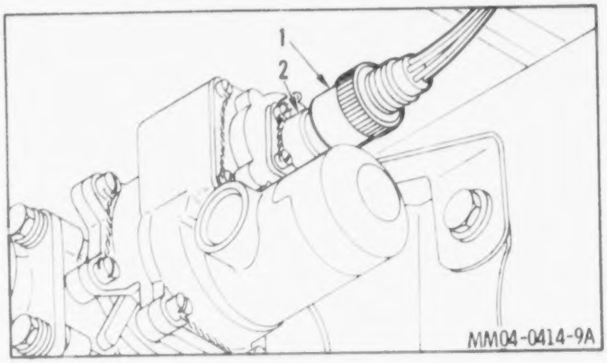
10-2-42. FUEL TRANSFER SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-42

10. Attach electrical connector P251 (1) to connector L17J1 (2).

11. Inspect (TI).

12. Perform fuel quantity indication/ transfer operational check (TM 55-1520-238-T).

13. Install ammunition storage magazine (TM 9-1090-208-23).



END OF TASK

10-2-43. FUEL TRANSFER PUMP REMOVAL 10-2-43

This task covers: A. REMOVAL B. CLEANING C. INSPECTION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 15/16 & 1-inch box	5120-00-204-2670

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

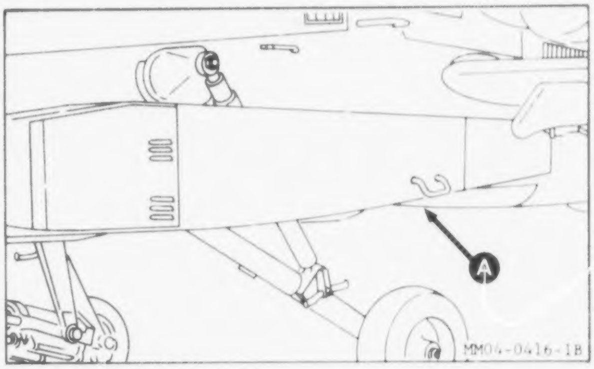
67R10 Attack Helicopter Repairer

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**
2. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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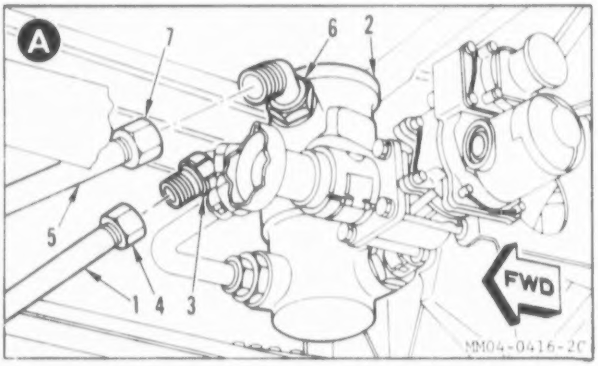
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

3. **Disconnect outboard fuel transfer pump tube (1) from fuel transfer pump (2).**
   a. Hold elbow (3).
   b. Disconnect tube nut (4) from elbow (3).
4. **Disconnect inboard fuel transfer pump tube (5) from pump (2).**
   a. Hold elbow (6).
   b. Disconnect tube nut (7) from elbow (6).



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10-2-43. FUEL TRANSFER PUMP REMOVAL (cont) 10-2-43

5. **Disconnect fuel drain tube (8) from pump (2).**

   a. Hold elbow (9).

   b. Remove tube nut (10).

6. **Remove fuel inlet tube retainer (11).**

   a. Unlatch and remove retainer (11).

   b. Slide body (12) on tube (15).

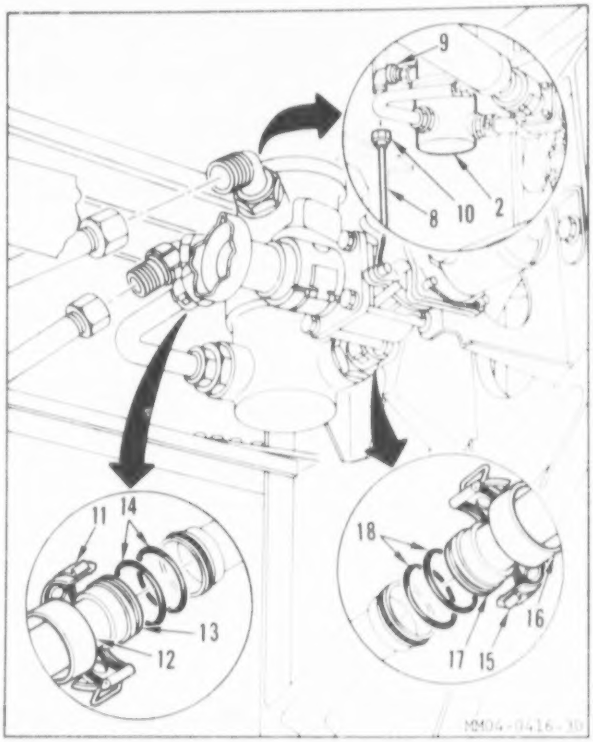
   c. Remove and discard two packings (14).

7. **Remove transfer pump aft fuel inlet retainer (15).**

   a. Unlatch and remove retainer (15).

   b. Slide body (16) on fuel line of shutoff valve (17).

   c. Remove and discard two packings (18).

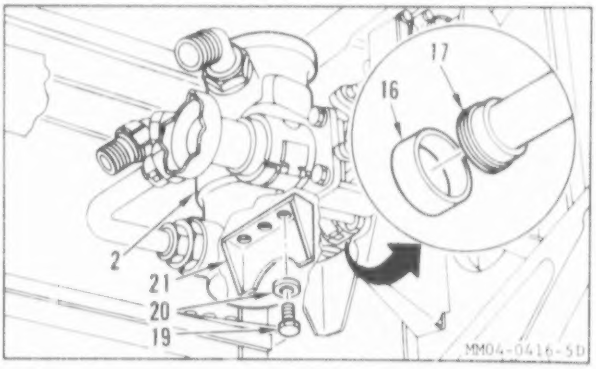


8. **Remove pump (2).**

   a. Remove three bolts (19) and washers (20).

   b. Remove pump (2) from mounting bracket (21).

9. **Remove body (16) from valve (17).**



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10-2-43. FUEL TRANSFER PUMP REMOVAL (cont) 10-2-43

10. **Remove elbows (3), (6), and (9); and fittings (13) and (22) if fuel pump (2) is to be replaced.**

    a. Loosen jam nut (23).

    b. Remove elbow (3).

    c. Remove and discard packing (24).

    d. Loosen jam nut (25).

    e. Remove elbow (6).

    f. Remove and discard packing (26).

    g. Loosen jam nut (27).

    h. Remove elbow (9).

    i. Remove and discard packing (28).

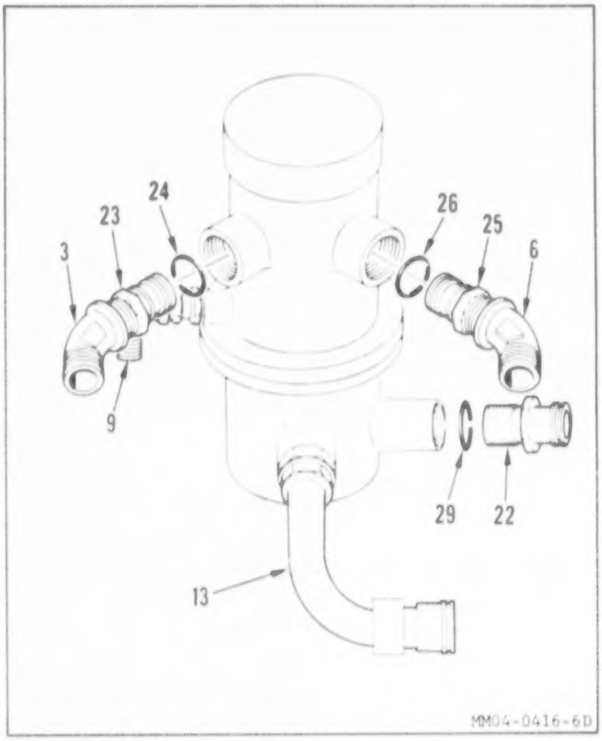
    j. Remove fitting (22). Use 15/16 and 1-inch box wrench.

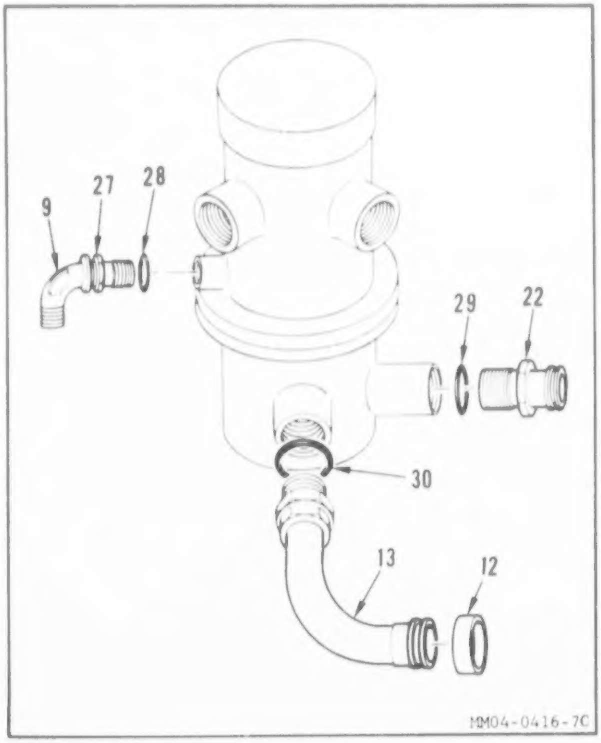
    k. Remove and discard packing (29).

    l. Remove body (12) from tube (13).

    m. Remove tube (13).

    n. Remove and discard packing (30).





B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check tubes and fittings for damage (para 10-2-1).

END OF TASK

10-2-44. FUEL TRANSFER PUMP INSTALLATION 10-2-44

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 15/16 & 1-inch Box	5120-00-204-2670

Materials/Parts:

Packing (9)
(E16) Petrolatum

Personnel Required:

67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

10-2-43 Fuel transfer pump removed

WARNING

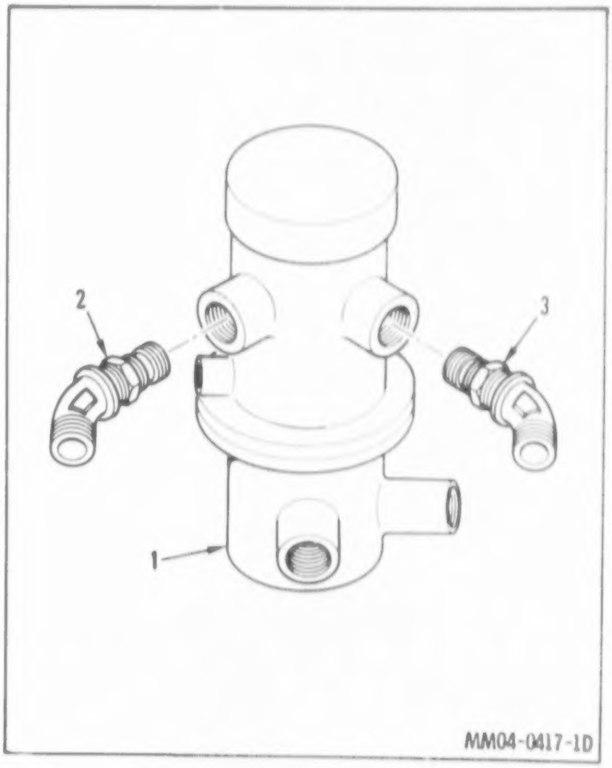
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

NOTE

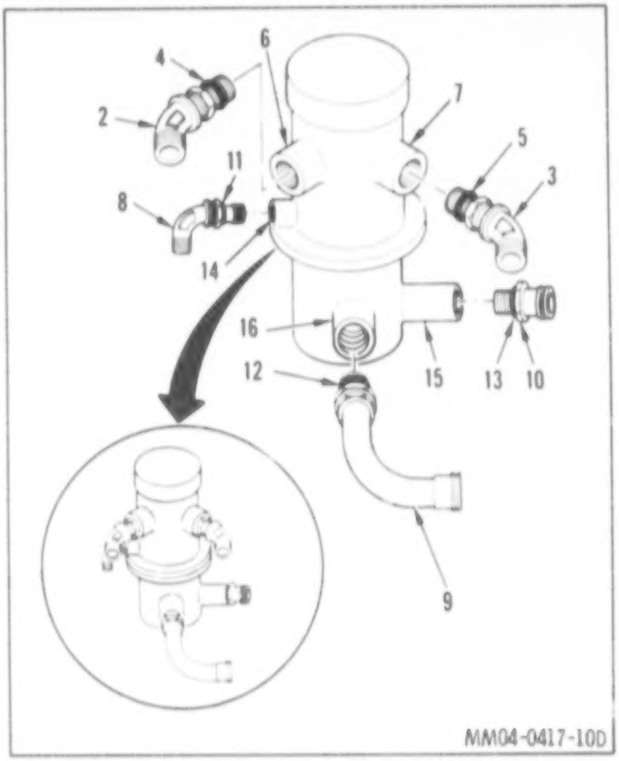
If pump is being replaced perform step 1. If not proceed to step 2.

1. **Prepare fuel transfer pump (1) for installation.**

   a. Lubricate threads of elbows (2) and (3). Use petrolatum (E16).



10-2-44. FUEL TRANSFER PUMP INSTALLATION (cont) 10-2-44



b. Lubricate new packings (4) and (5). Use petrolatum (E16).

c. Install packings (4) and (5) on elbows (2) and (3).

d. Install elbows (2) and (3) into pump bosses (6) and (7). Do not tighten elbows (2) and (3).

e. Lubricate threads of elbow (8) and transfer pump fittings (9) and (10). Use petrolatum (E16).

f. Lubricate new packings (11), (12), and (13). Use petrolatum (E16).

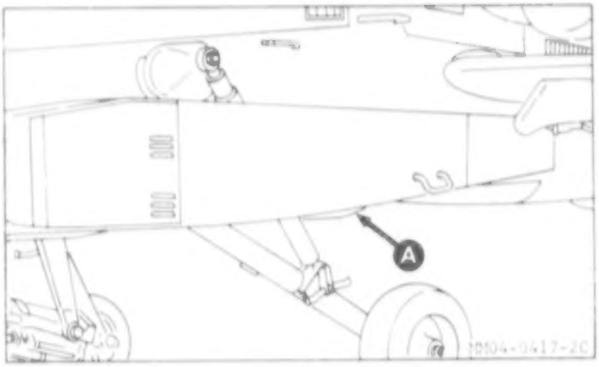
g. Install new packing (11) on elbow (8).

h. Install new packings (12) and (13) on tube (9) and fitting (10).

i. Install elbow (8) in pump boss (14). Do not tighten elbow (8).

j. Install fitting (10) in pump boss (15). Use 15/16 and 1-inch box wrench.

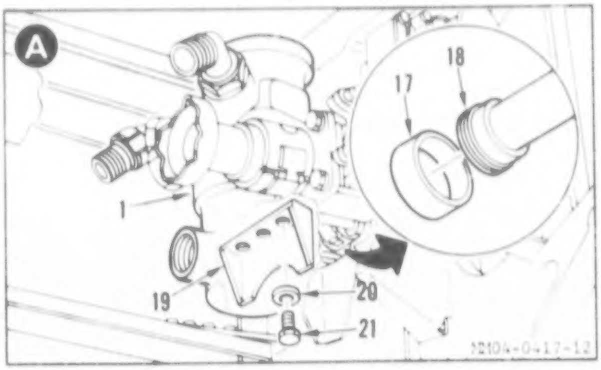
k. Install tube (9) in pump boss (16).



2. **Install body (17) on fuel shutoff valve fitting (18).**

3. **Install pump (1) on mounting bracket (19).**

   a. Install three bolts (21) through three washers (20), bracket (19), and pump (1).



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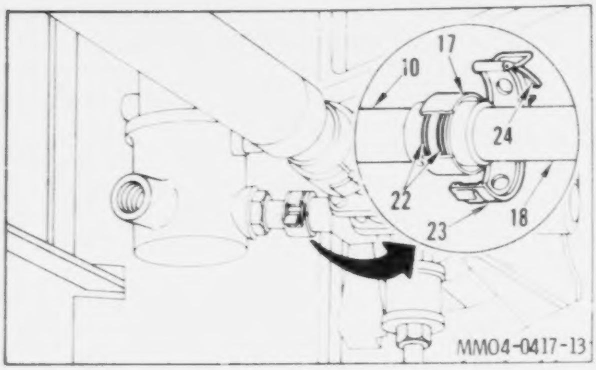
10-2-44. FUEL TRANSFER PUMP INSTALLATION (cont) 10-2-44



NOTE

Safety spring will not latch unless body is correctly installed.

4. **Connect fitting (18) to fitting (10).**

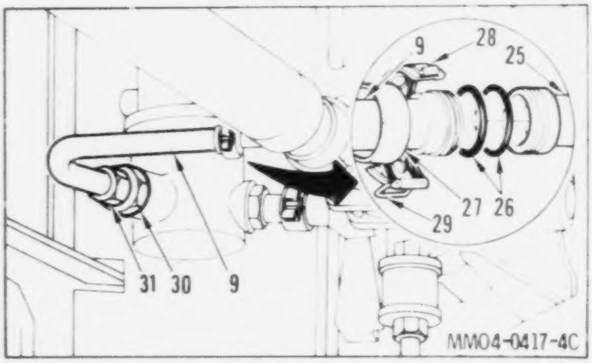
   a. Lubricate two new packings (22). Use petrolatum (E16).

   b. Install packings (22) on fittings (10) and (18).

   c. Position body (17) over packings (22).

   d. Position retainer (23) over body (17).

   e. Latch retainer (23). Ensure locking of safety spring (24).



5. **Connect fitting (9) to fuel inlet tube fitting (25).**

   a. Lubricate two new packings (26). Use petrolatum (E16).

   b. Install packings (26) on fittings (9) and (25).

   c. Install body (27) over packings (26).

   d. Position retainer (28) over body (27).

   e. Latch reatiner (28). Ensure locking of safety spring (29).

   f. Hold nut (30).

   g. Tighten jam nut (31).

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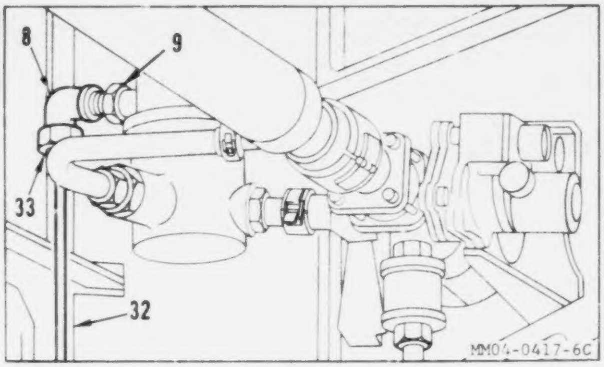
10-2-44. FUEL TRANSFER PUMP INSTALLATION (cont) 10-2-44

6. Connect fuel drain tube (32) to elbow (8).



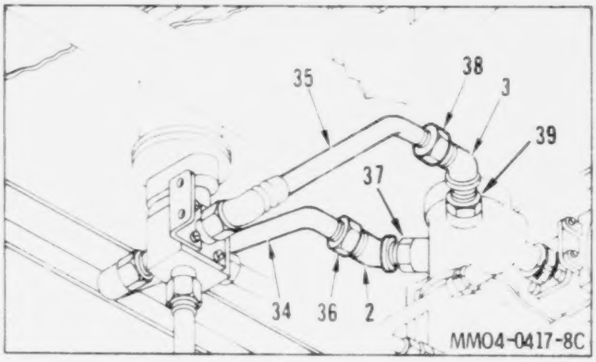
a. Lubricate threads of elbow (8). Use petrolatum (E16).

b. Hold elbow (8).

c. Tighten tube nut (33).

d. Tighten jam nut (9).

7. Connect tubes (34) and (35) to elbows (2) and (3).



a. Lubricate threads of elbows (2) and (3). Use petrolatum (E16).

b. Hold elbow (2). Tighten tube nut (36).

c. Tighten jam nut (37).

d. Hold elbow (3). Tighten tube nut (38).

e. Tighten jam nut (39).

8. Inspect (TI).

9. Perform fuel quantity indication/ transfer operational check (TM 55-1520-238-T).

10. Install ammunition storage magazine (TM 9-1090-208-23).

END OF TASK

10-2-45. FORWARD REFUELING HOSE REPLACEMENT 10-2-45

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (6)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

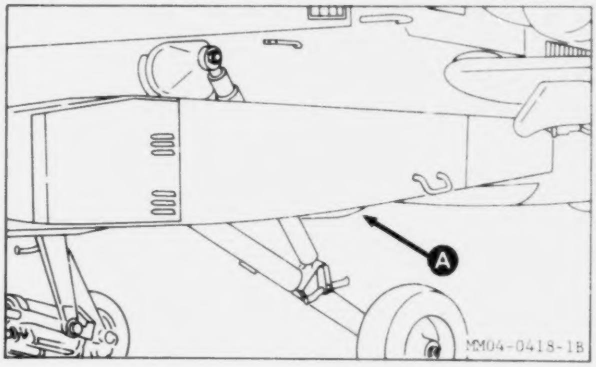
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled
TM 9-1090-208-23	Ammunition storage magazine removed



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10-2-45. FORWARD REFUELING HOSE REPLACEMENT (cont) 10-2-45

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.

2. Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. Remove hose clamp (1).

   a. Hold bolts (2).

   b. Remove two nuts (3) and washers (4).

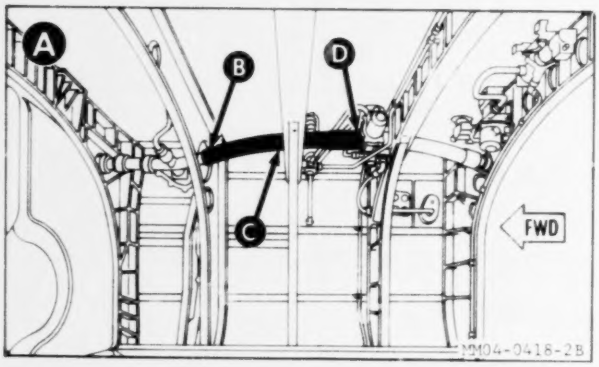
4. Disconnect forward refueling hose (5) from pressure fuel manifold fitting (6).

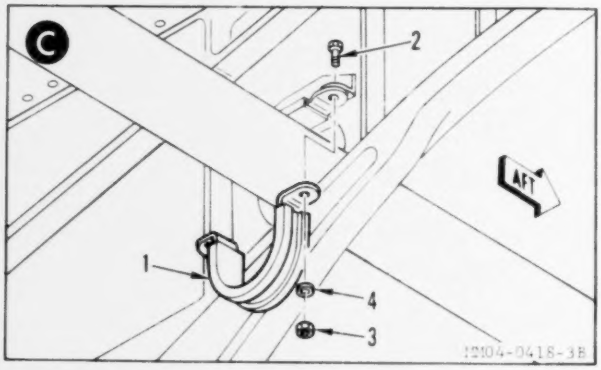
   a. Turn coupling nut (7) until it clears coupling body (8).

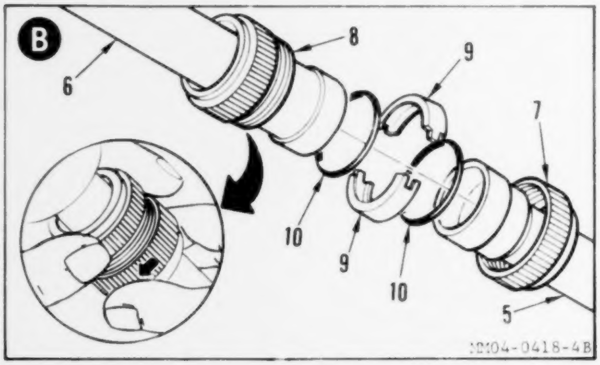
   b. Pull nut (7) back.

   c. Remove snap retainer halves (9).

   d. Remove and discard two packings (10).







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10-2-45. FORWARD REFUELING HOSE REPLACEMENT (cont) 10-2-45

5. Disconnect hose (5) from transfer pump fitting (11) and shutoff valve fitting (12).

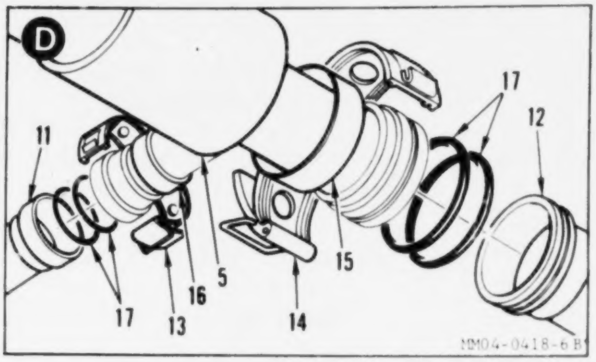
   a. Unlatch and remove retainers (13) and (14).

   b. Slide bodies (15) and (16) on hose (5).

   c. Remove and discard four packings (17).

   d. Remove hose (5).

   e. Remove two bodies (15) and (16) from hose (5).



B. CLEANING

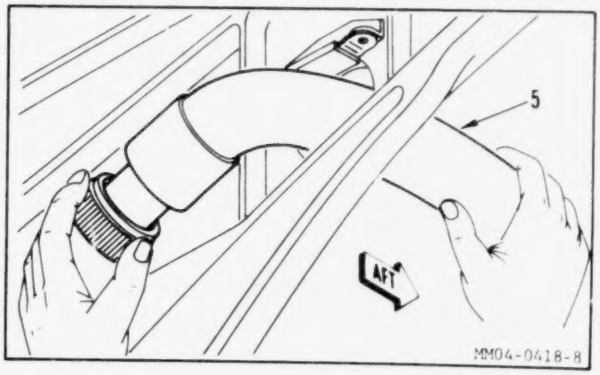
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check attach points on manifold fitting, transfer pump fitting, and shutoff valve fitting for cracks, nicks, gouges, and deformations (para 10-2-1).

D. INSTALLATION

1. Pass forward refueling hose (5) through opening in frame.



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10-2-45. FORWARD REFUELING HOSE REPLACEMENT (cont) 10-2-45

2. **Connect hose (5) to fitting (6).**

   a. Lubricate two new packings (10). Use petrolatum (E16).

   b. Install one packing (10) on hose (5).

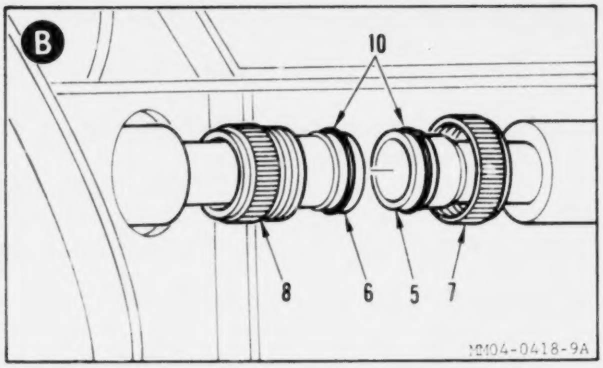
   c. Install one packing (10) on fitting (6).

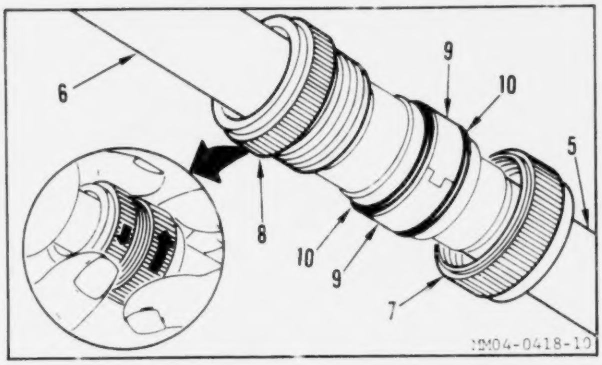
   d. Install retainer halves (9) between packings (10).

   e. Lubricate threads of coupling body (8). Use petrolatum (E16).

   f. Slide and hold coupling body (8) over packings (10) and retainers (9).

   g. Tighten coupling nut (7).





3. **Connect forward refueling hose (5) to transfer pump fitting (11).**

   a. Place body (16) on fitting (11).

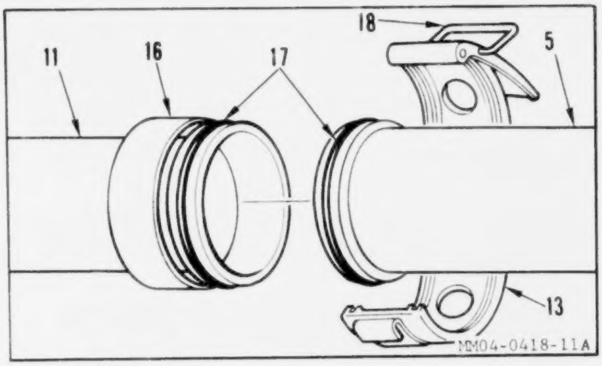
   b. Lubricate two new packings (17). Use petrolatum (E16).

   c. Install packings (17) on hose (5) and fitting (11).

   d. Center body (16) over packings (17).

   e. Position retainer (13) around body (16).

   f. Latch retainer (13). Ensure locking of safety spring (18).



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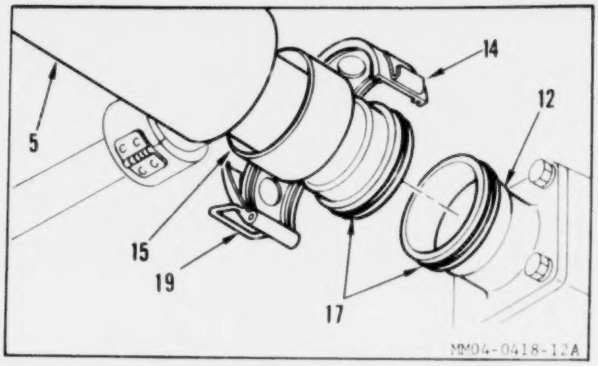
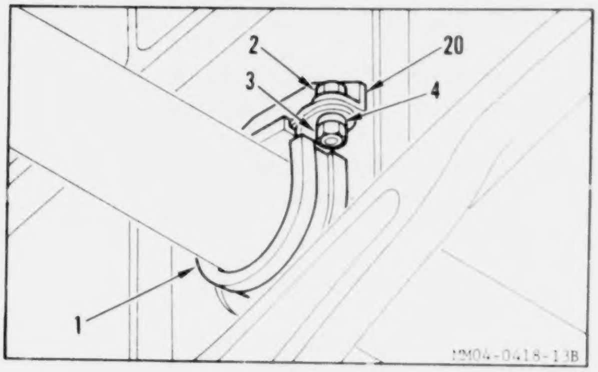
10-2-45. FORWARD REFUELING HOSE REPLACEMENT (cont) 10-2-45





4. **Connect hose (5) to fitting (12).**
   - a. Place body (15) on hose (5).
   - b. Lubricate two new packings (17). Use petrolatum (E16).
   - c. Install two packings (17) on hose (5) and fitting (12).
   - d. Center body (15) over packings (17).
   - e. Position retainer (14) around body (15).
   - f. Latch retainer (14). Ensure locking of safety spring (19).
5. **Install hose clamp (1).**
   - a. Position clamp (1) on bracket (20).
   - b. Install two bolts (2), washers (4), and nuts (3).
   - c. Hold bolts (2).
   - d. Tighten nuts (3).
6. **Inspect (TI).**
7. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
8. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-46. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE COUPLER HOSE REPLACEMENT 10-2-46

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Personnel Required:

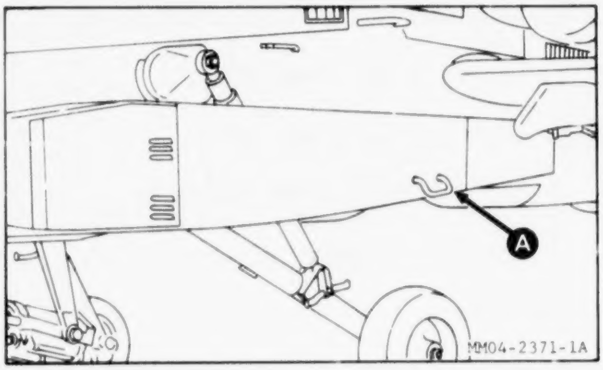
67R10 Attack Helicopter Repairer
66R30 Supervisor/Inspector

References:

TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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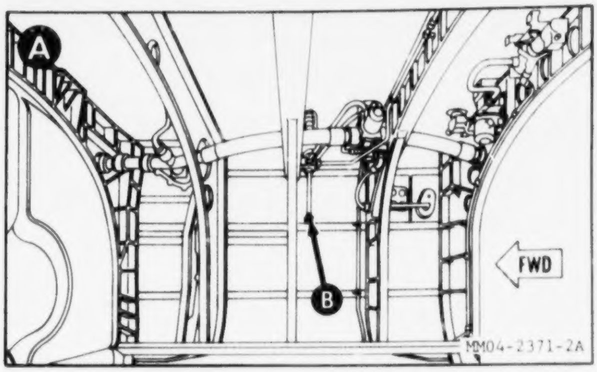
10-2-46. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE COUPLER HOSE REPLACEMENT (cont) 10-2-46

A. REMOVAL



WARNING

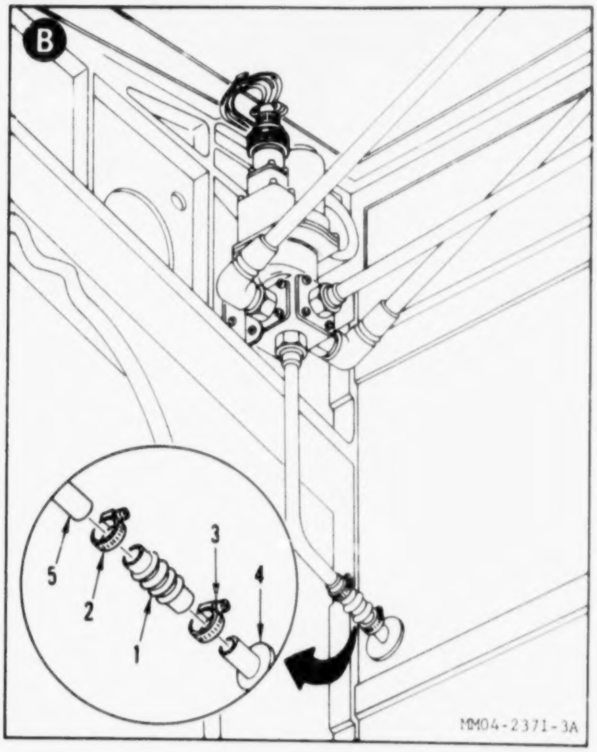
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. Remove fuel transfer valve air exhaust vent tube coupler hose (1).

   a. Loosen hose clamp (2).

   b. Loosen hose clamp (3).

   c. Pull hose (1) from fuselage drain fitting (4) and tube (5) with hose clamps (2) and (3).



B. CLEANING

Wipe all removed and attaching parts with a clean rag.

C. INSPECTION

Check fuselage drain fitting and tube for cracks, nicks, and gouges (para 10-2-1).

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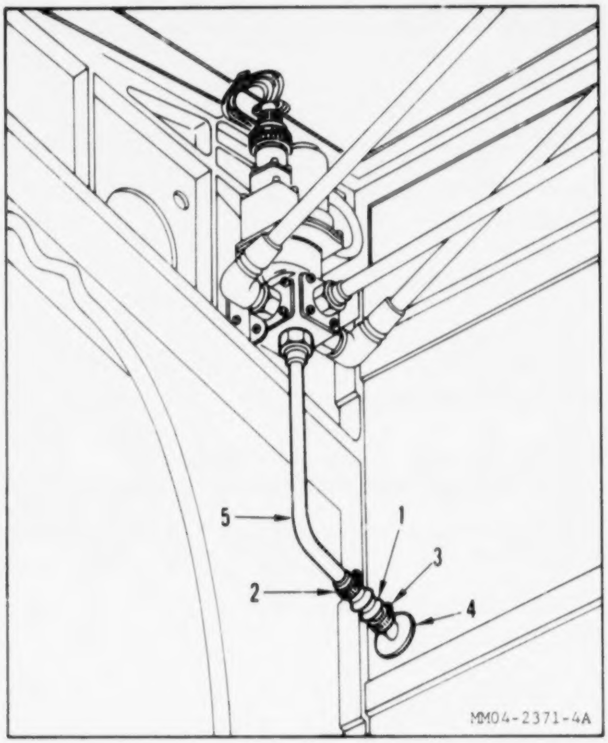
10-2-46. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE COUPLER HOSE REPLACEMENT (cont) 10-2-46



D. INSTALLATION

1. **Install hose (1).**
   - a. Install hose clamps (2) and (3) on hose (1).
   - b. Push hose (1) on fuselage drain fitting (4) and tube (5).
   - c. Tighten hose clamps (2) and (3).
2. **Inspect (TI).**
3. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-47. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE REPLACEMENT 10-2-47

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum

Personnel Required:

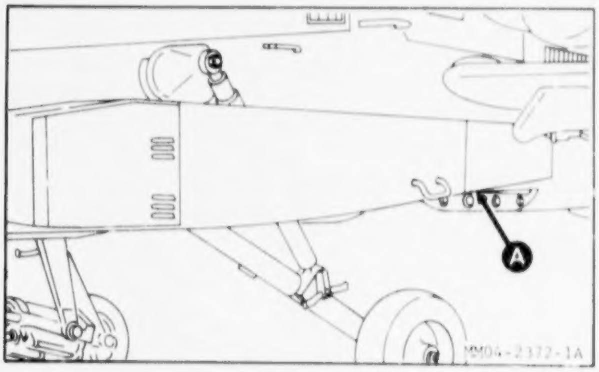
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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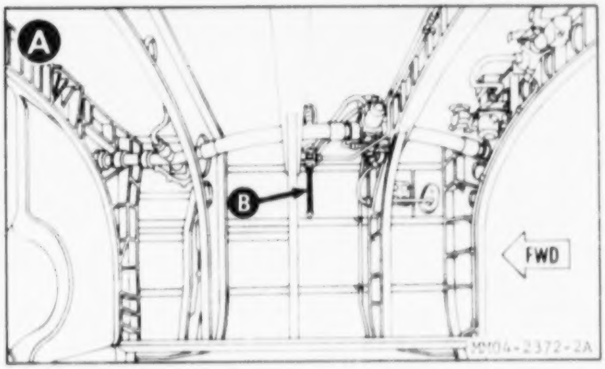
10-2-47. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE REPLACEMENT (cont) 10-2-47

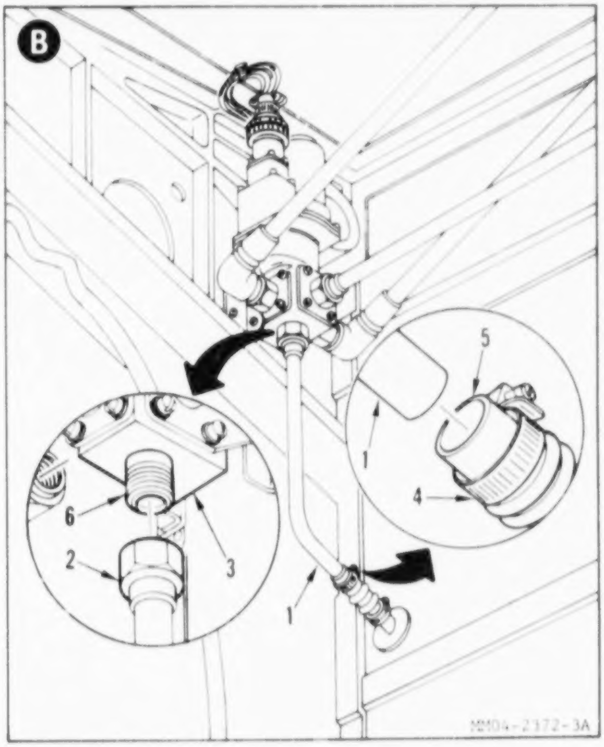
A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. Remove fuel transfer valve air exhaust vent tube (1).
   a. Disconnect tube nut (2) from fitting (6) on air valve (3).
   b. Loosen hose clamp (4).
   c. Pull tube (1) until it clears hose (5).



B. CLEANING

Wipe all removed and attaching parts with a clean rag.

C. INSPECTION

1. Check fitting on air valve for damaged threads and cracks. None allowed.
2. Check hose for tears, cuts, and cracks. None allowed.

GO TO NEXT PAGE

10-2-47. FUEL TRANSFER VALVE AIR EXHAUST VENT TUBE REPLACEMENT (cont) 10-2-47

D. INSTALLATION

1. **Install tube (1).**

   a. Insert tube (1) into hose (5).

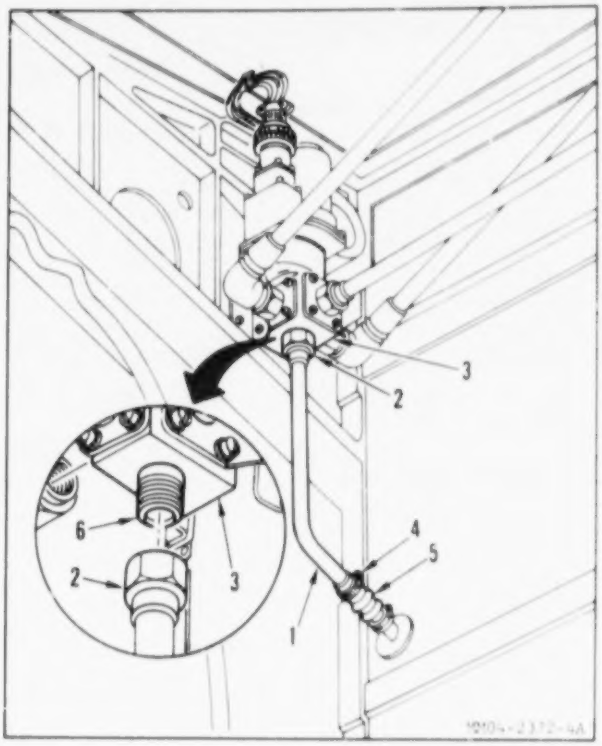
   b. Tighten clamp (4).

   c. Lubricate threads of fitting (6). Use petrolatum (E16).

   d. Connect nut (2) to fitting (6) on valve (3).

2. **Inspect (TI).**

3. **Install ammunition storage magazine (TM 9-1090-208-23).**



END OF TASK

10-2-48. FUEL TRANSFER PUMP/AIR CONTROL VALVE OUTBOARD TUBE REPLACEMENT 10-2-48

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

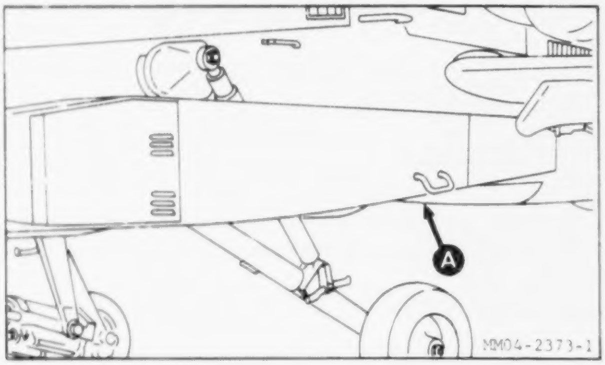
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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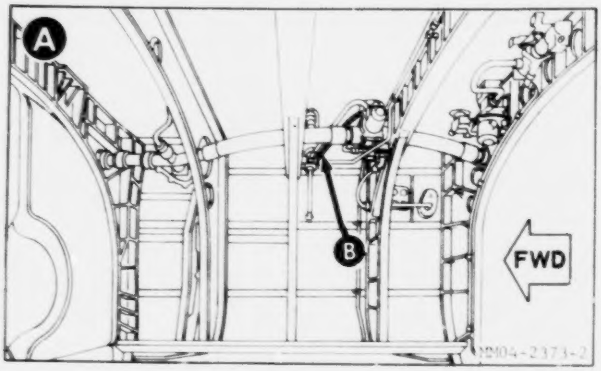
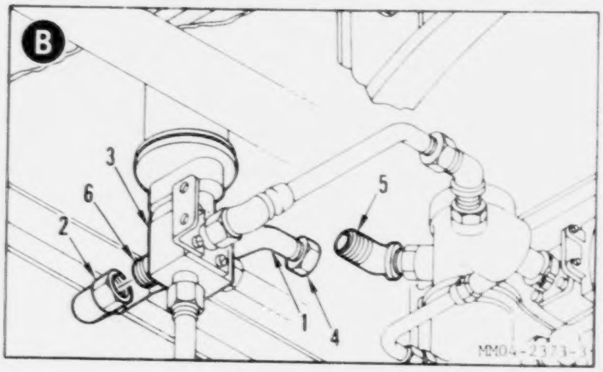
10-2-48. FUEL TRANSFER PUMP/AIR CONTROL VALVE OUTBOARD TUBE REPLACEMENT (cont) 10-2-48

A. REMOVAL





WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove outboard fuel transfer pump/air valve tube (1).**
   - a. Disconnect tube nut (2) from fitting (6) on valve (3).
   - b. Disconnect tube nut (4) from elbow (5).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check elbow and connection on air valve for cracks and damaged threads. None allowed.

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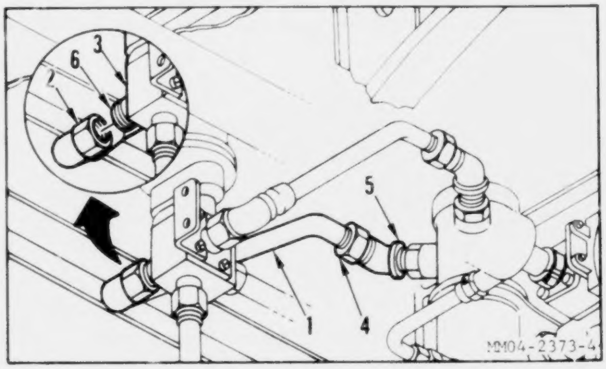
10-2-48. FUEL TRANSFER PUMP/AIR CONTROL VALVE OUTBOARD TUBE REPLACEMENT 10-2-48

D. INSTALLATION



1. **Install tube (1).**
   a. Lubricate threads of connection (6) on valve (3). Use petrolatum (E16).
   b. Lubricate threads on elbow (5). Use petrolatum (E16).
   c. Connect nut (4) to elbow (5).
   d. Connect nut (2) to fitting (6) on valve (3).
2. **Inspect (TI).**
3. **Perform fuel quantity indication/transfer operational check** (TM 55-1520-238-T).
4. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-49. FUEL TRANSFER PUMP/AIR CONTROL VALVE INBOARD TUBE REPLACEMENT 10-2-49

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

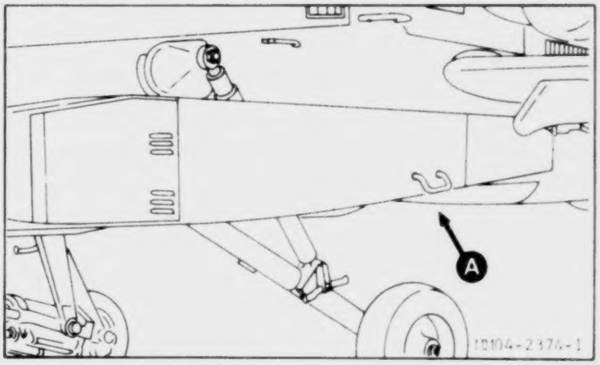
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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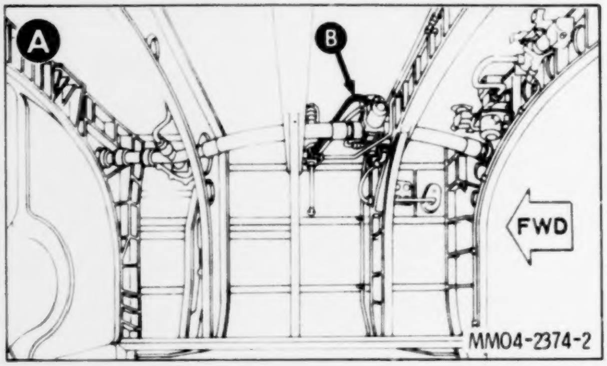
10-2-49. FUEL TRANSFER PUMP/AIR CONTROL VALVE INBOARD TUBE REPLACEMENT (cont) 10-2-49

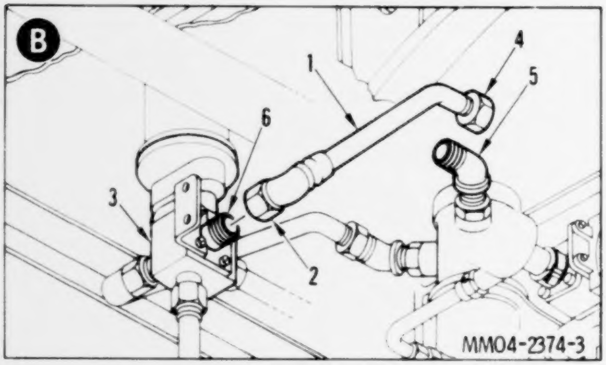
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove inboard fuel transfer pump/air valve tube (1).**
   - a. Disconnect tube nut (2) from fitting (6) on valve (3).
   - b. Disconnect tube nut (4) from elbow (5).





B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check elbow and connection on air valve for cracks or damaged threads. None allowed.

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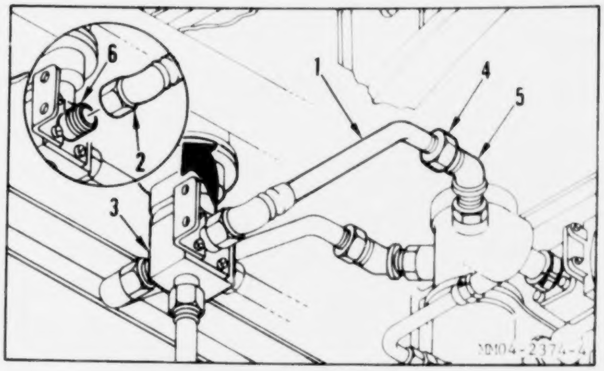
10-2-49. FUEL TRANSFER PUMP/AIR CONTROL VALVE INBOARD TUBE REPLACEMENT (cont) 10-2-49

D. INSTALLATION



1. **Install tube (1).**
   - a. Lubricate connection (6) on air valve (3). Use petrolatum (E16).
   - b. Lubricate threads on elbow (5). Use petrolatum (E16).
   - c. Connect tube nut (4) to elbow (5).
   - d. Connect tube nut (2) to fitting (6) on valve (3).
2. **Inspect (TI).**
3. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).
4. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-50. FUEL TRANSFER PUMP DRAIN TUBE REPLACEMENT 10-2-50

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum

Personnel Required:

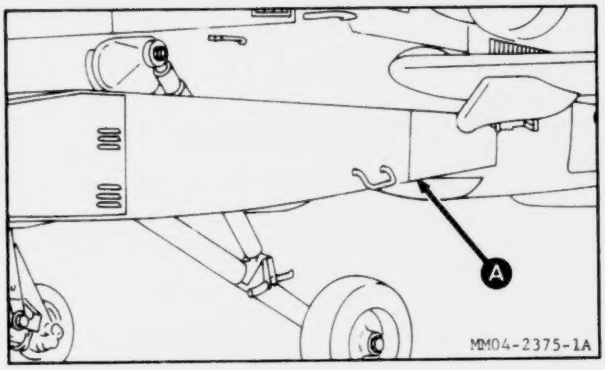
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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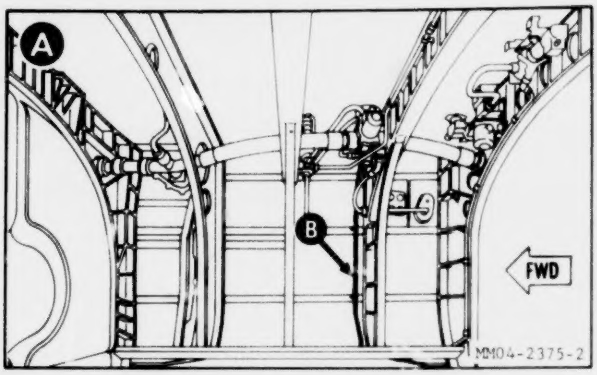
10-2-50. FUEL TRANSFER PUMP DRAIN TUBE REPLACEMENT (cont) 10-2-50

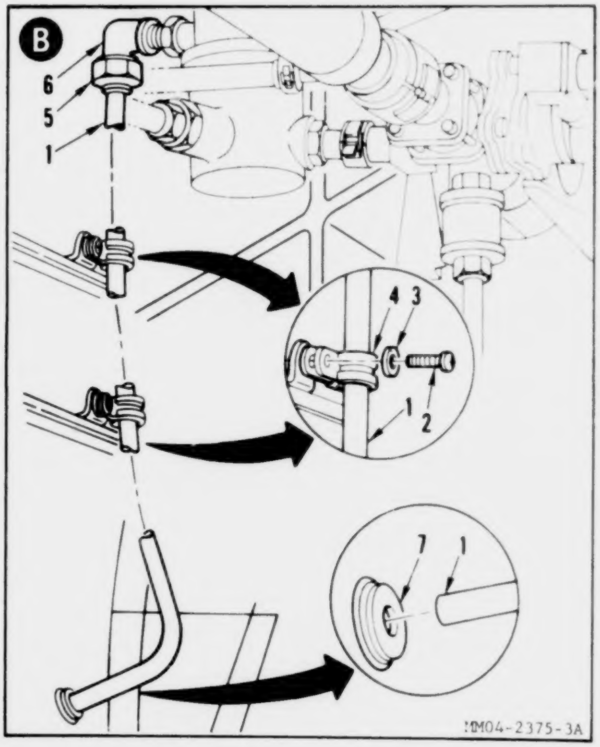
A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove fuel transfer pump drain tube (1).**
   a. Remove two screws (2) and two washers (3).
   b. Remove two clamps (4).
   c. Disconnect drain tube nut (5) from elbow (6).
   d. Pull tube (1) out of grommet (7).



B. CLEANING

Wipe all removed and attaching parts with a clean rug.

C. INSPECTION

1. **Check transfer pump elbow and fuselage clamp brackets for cracks, nicks, or damaged threads** (para 10-2-1).
2. **Check fuselage grommet for cracks or cuts.** None allowed.

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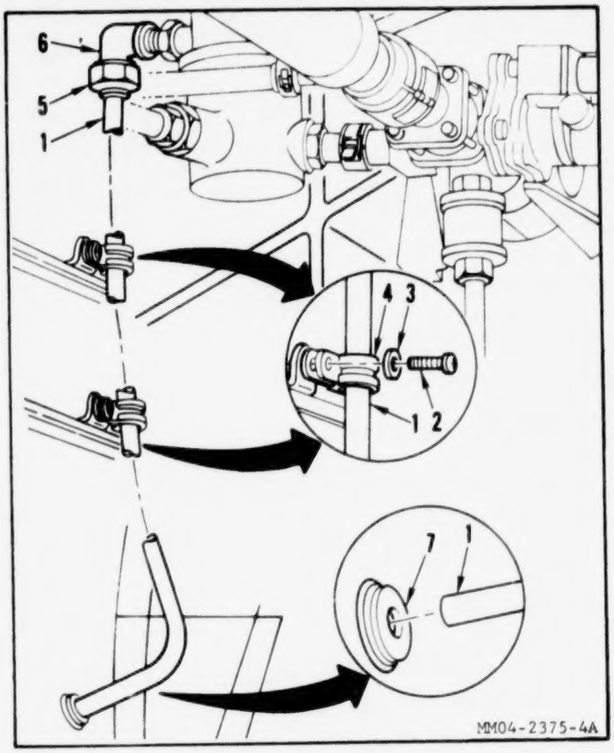
10-2-50. FUEL TRANSFER PUMP DRAIN TUBE REPLACEMENT (cont) 10-2-50

D. INSTALLATION

1. **Install tube (1).**
   a. Install two clamps (4) on tube (1).
   b. Push tube (1) through grommet (7).
   c. Lubricate elbow (6). Use petrolatum (E16).
   d. Connect nut (5) to elbow (6).
   e. Install two screws (2) through two washers (3) and clamps (4).
2. **Inspect (TI).**
3. **Install ammunition storage magazine** (TM 9-1090-208-23).



END OF TASK

10-2-51. FUEL TRANSFER AIR CONTROL VALVE REMOVAL/INSTALLATION 10-2-51

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

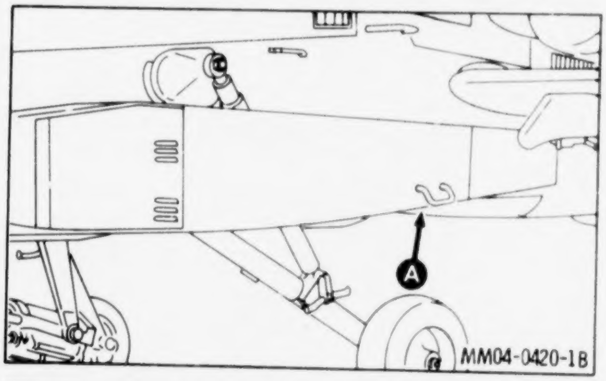
TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**
2. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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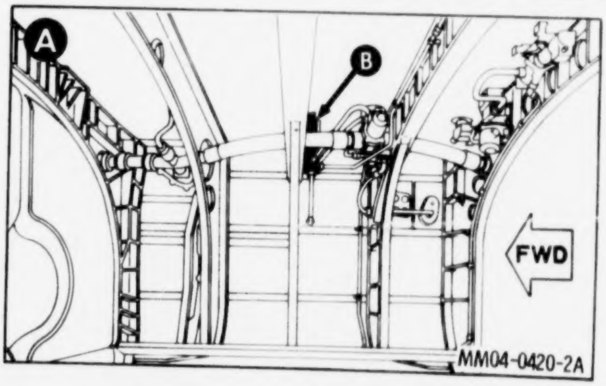

MM04-0420-2A

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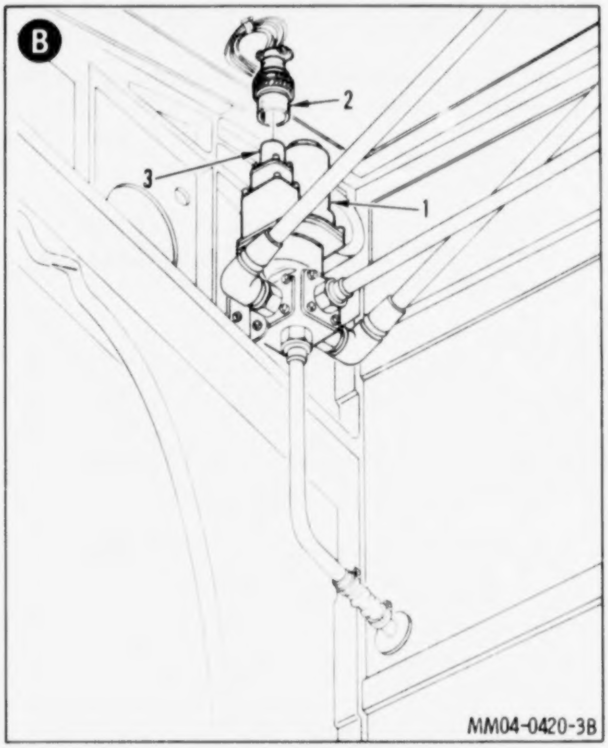
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. **Remove fuel transfer air control valve (1).**

   a. Detach connector P940 (2) from connector L3J1 (3) on valve (1).

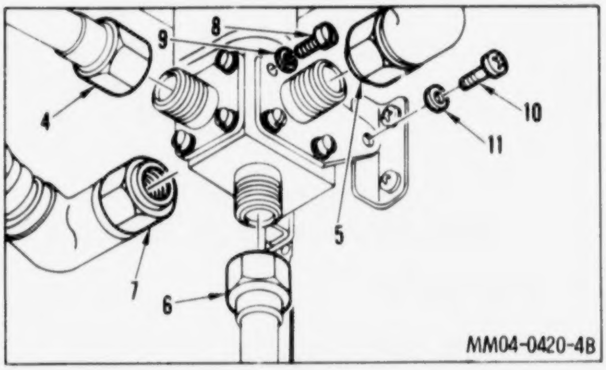


MM04-0420-3B

   b. Disconnect tube nuts (4), (5), (6), and (7).

   c. Remove screw (8) and washer (9) if grounding strap is installed.

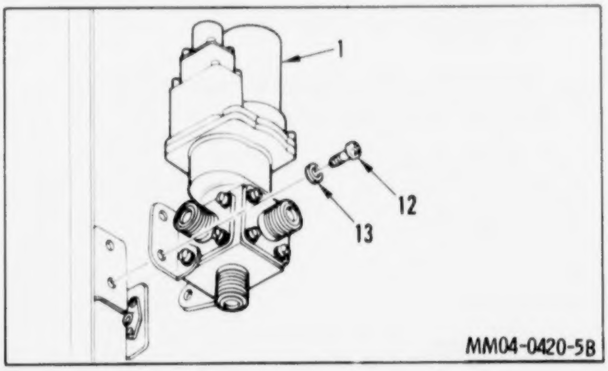
   d. Remove screw (10) and washer (11).



MM04-0420-4B

   e. Remove two screws (12) and two washers (13).

   f. Remove valve (1).



MM04-0420-5B

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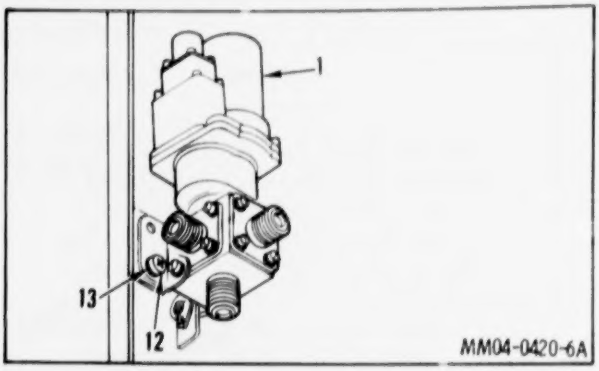
10-2-51. FUEL TRANSFER AIR CONTROL VALVE REMOVAL/INSTALLATION (cont) 10-2-51

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

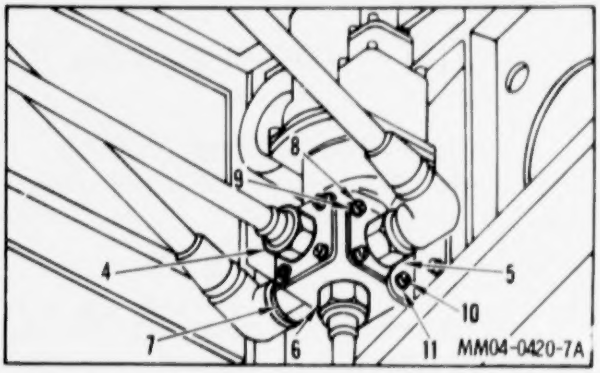
C. INSPECTION

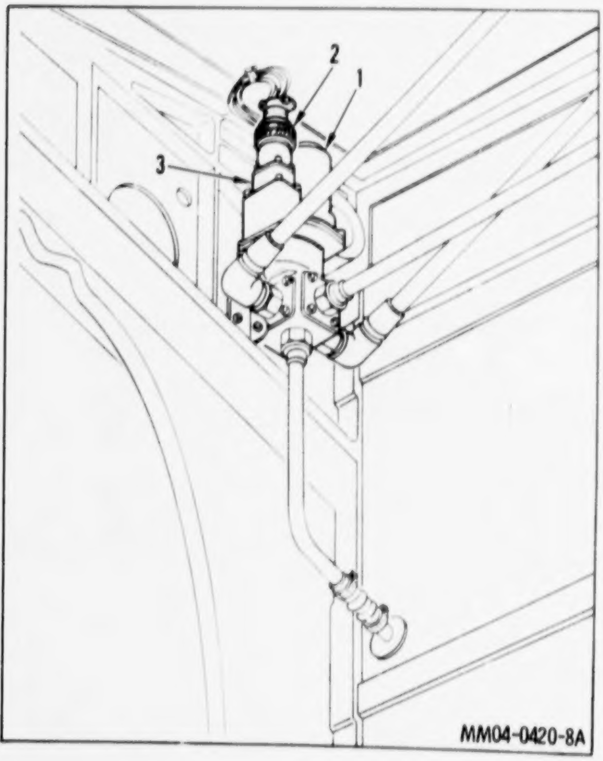
Check all removed and attaching parts for cracks, dents, nicks, and damaged threads (para 10-2-1).



D. INSTALLATION

1. **Install fuel transfer air control valve (1).**
   a. Install two washers (13) and two screws (12).
   b. Lubricate valve (1) thread fittings. Use petrolatum (E16).
   c. Install washer (9) and screw (8) if ground strap was removed.
   d. Install washer (11) and screw (10).
   e. Install tube nuts (4), (5), (6), and (7).
   f. Attach connector P940 (2) to connector L3J1 (3) on valve (1).
2. **Inspect (TI).**
3. **Perform fuel quantity indication/transfer operational check** (TM 55-1520-238-T).
4. **Install ammo storage magazine** (TM 9-1090-208-23).





END OF TASK

10-2-52. AFT REFUELING HOSE REPLACEMENT 10-2-52

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (5)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

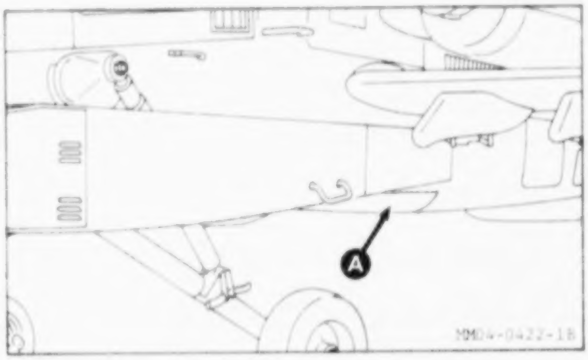
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-42	Fuel transfer shutoff valve removed
10-2-59	Right auxiliary fuel tank check valve removed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL BST circuit breaker on pilot center circuit breaker panel.**



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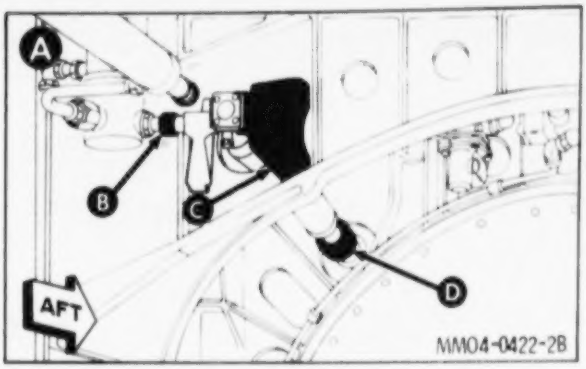
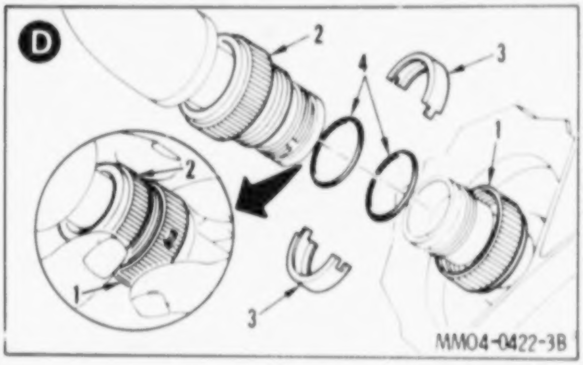
10-2-52. AFT REFUELING HOSE REPLACEMENT (cont) 10-2-52

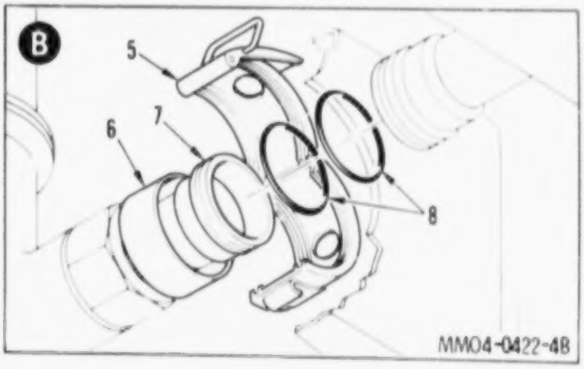
WARNING

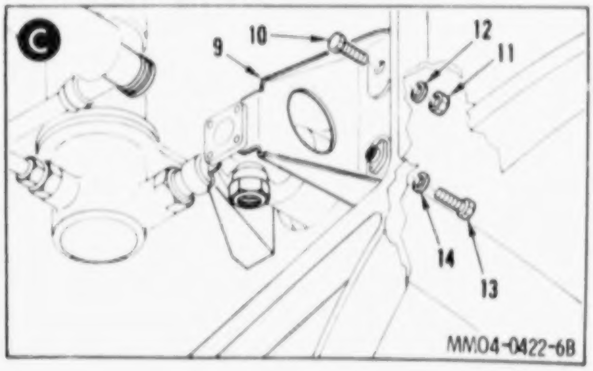
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. **Disconnect hose coupling nut (1) from coupling body (2).**
   a. Turn nut (1) until it clears body (2).
   b. Pull body (2) back.
   c. Remove snap retainer halves (3).
   d. Remove and discard two packings (4).
4. **Disconnect hose retainer (5).**
   a. Unlatch and remove retainer (5).
   b. Slide body (6) on transfer pump ferrule (7).
   c. Remove and discard two packings (8).
5. **Remove inboard mounting bracket (9).**
   a. Hold bolt (10).
   b. Remove nut (11) and washer (12).
   c. Remove bolt (13) and washer (14).
   d. Remove bracket (9).









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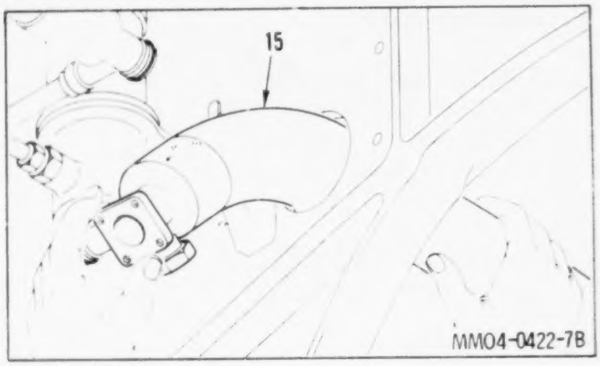
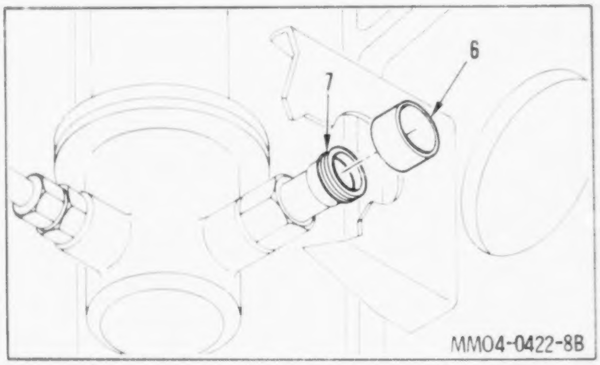
10-2-52. AFT REFUELING HOSE REPLACEMENT (cont) 10-2-52

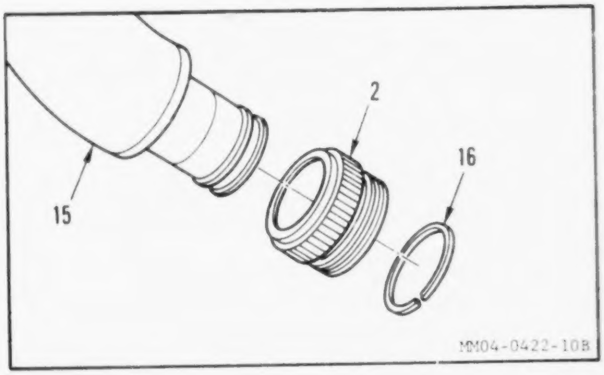
6. **Remove aft refueling hose (15).**
   Bend hose (15) as required to clear structure of helicopter.



7. **Remove connector body (6) from ferrule (7).**



8. **Remove coupling body (2) and split retainer (16) from hose (15).**
   - a. Pull retainer (16) over end of hose (15).
   - b. Remove body (2).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

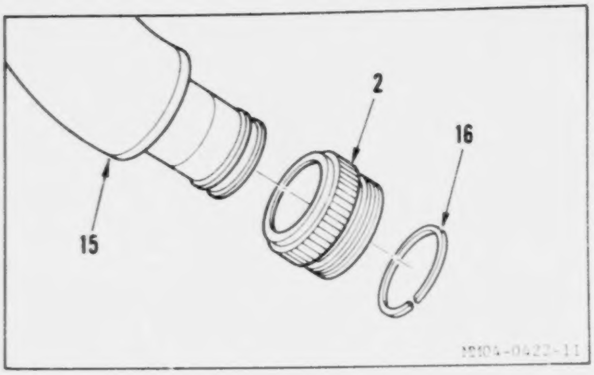
Check all removed and attaching parts for nicks, cracks, dents, or damaged threads (para 10-2-1).

GO TO NEXT PAGE

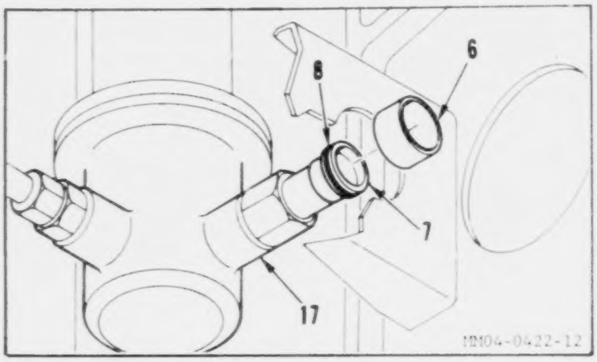
10-2-52. AFT REFUELING HOSE REPLACEMENT (cont) 10-2-52

D. INSTALLATION

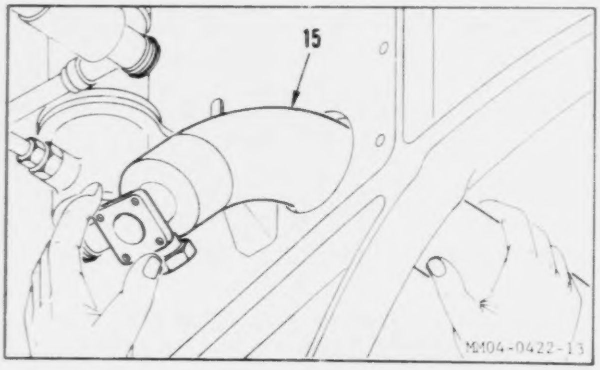
1. **Install coupling body (2) and split retainer (16) over end of hose (15).**



2. **Install new packing (8) and body (6) on transfer pump (17).**
   a. Lubricate packing (8). Use petrolatum (E16).
   b. Install packing (8) on ferrule (7).
   c. Slide body (6) over packing (8) until body contacts transfer pump (17).

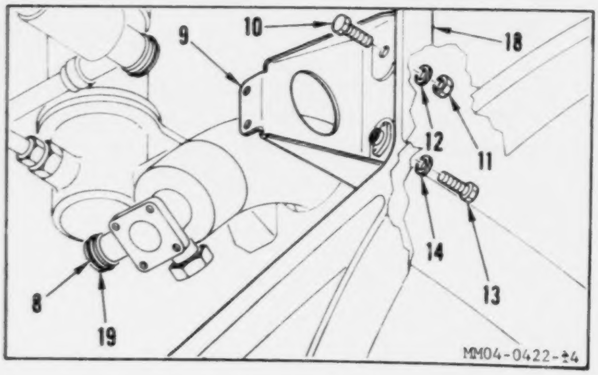


3. **Install hose (15).** Bend hose (15) as required to clear structure of helicopter.



4. **Install bracket (9).**
   a. Install bolt (10) through bracket (9) and bulkhead (18).
   b. Hold bolt (10).
   c. Install washer (12) and nut (11) on bolt (10).
   d. Install bolt (13) through washer (14), and bulkhead (18) into bracket (9).

5. **Install new packing (8) on refueling hose ferrule (19).**
   a. Lubricate packing (8). Use petrolatum (E16).
   b. Install packing (8) on hose ferrule (19).



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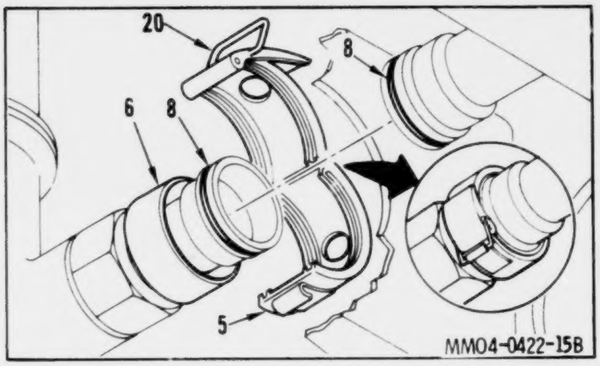
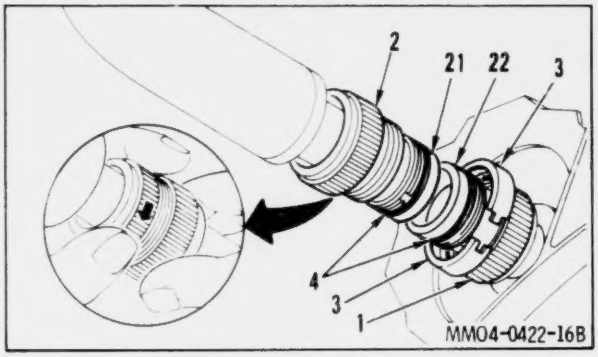
10-2-52. AFT REFUELING HOSE REPLACEMENT (cont) 10-2-52

6. **Connect retainer (5).**
   - a. Center body (6) over two packings (8).
   - b. Position retainer (5) around body (6).
   - c. Latch retainer (5). Ensure locking of safety spring (20).



MM04-0422-15B

7. **Connect nut (1) to body (2).**
   - a. Lubricate two new packings (4). Use petrolatum (E16).
   - b. Install one packing (4) on ferrule (21).
   - c. Install one packing (4) on ferrule (22).
   - d. Install retainer halves (3) between packings (4).
   - e. Lubricate threads of body (2). Use petrolatum (E16).
   - f. Slide and hold body (2) over packings (4) and retainer halves (3).
   - g. Tighten nut (1) on body (2).



MM04-0422-16B

8. **Inspect (TI).**
9. **Install right auxiliary tank check valve** (para 10-2-59).
10. **Install fuel transfer shutoff valve** (para 10-2-42).
11. **Perform pressure refueling/defueling - operational check** (TM 55-1520-238-T).
12. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-53. APU FUEL PUMP PRESSURE SWITCH REMOVAL/INSTALLATION 10-2-53

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Wrench, Torque, 3/8 Drive	5120-00-288-8865
Crowfoot Attachment, 7/8, 3/8 Drive	5120-00-181-6765

Materials/Parts:

	Packing
(E8)	Lockwire
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
Tm 9-1090-208-23

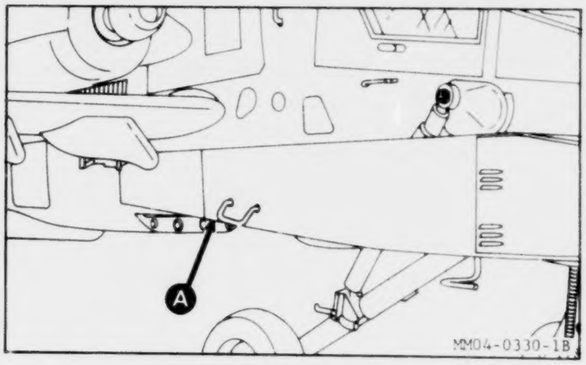
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INST circuit breaker on pilot forward circuit breaker panel.**



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10-2-53. APU FUEL PUMP PRESSURE SWITCH REMOVAL/INSTALLATION (cont) 10-2-53

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. **Remove APU fuel pump pressure switch (1) from fuel fitting (2).**

   a. Detach two electrical wires (3) from switch (1).

   b. Remove lockwire from switch (1) and fitting (2).

   c. Remove switch (1) from fitting (2).

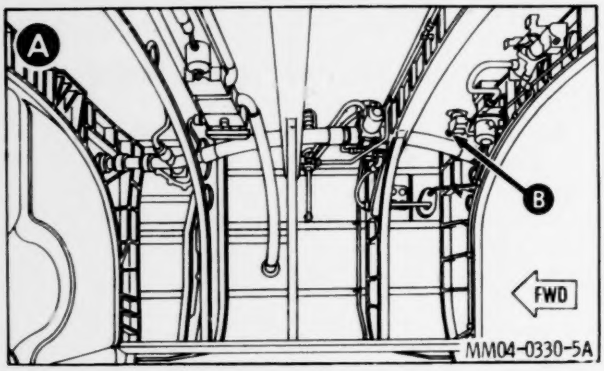
   d. Remove and discard packing (4) from switch (1).

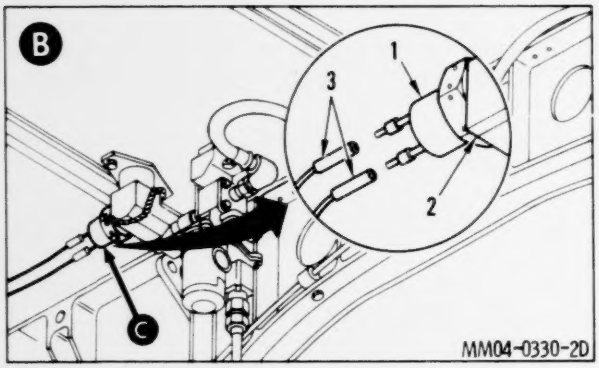
B. **CLEANING**

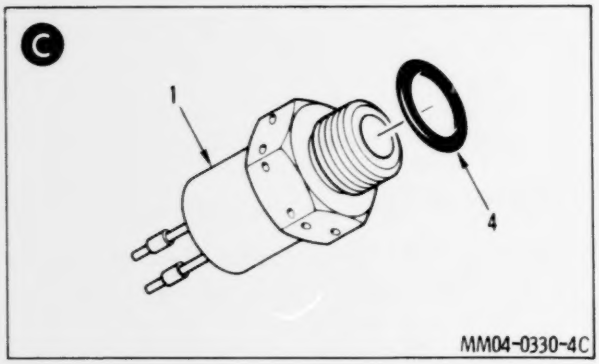
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check switch and fitting for nicks, dents, and stripped or damaged threads (para 10-2-1).







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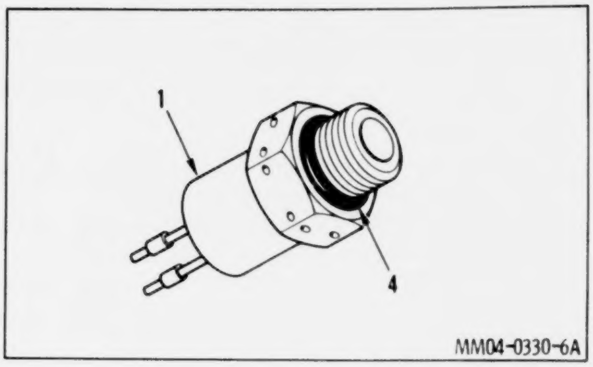
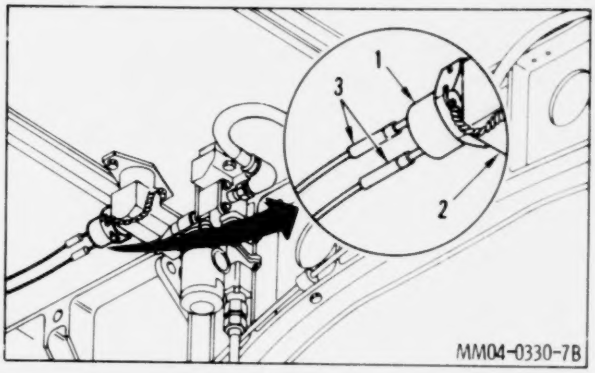
10-2-53. APU FUEL PUMP PRESSURE SWITCH REMOVAL/INSTALLATION (cont) 10-2-53

D. INSTALLATION





1. **Install new packing (4) on switch (1).**

   a. Lubricate packing (4). Use petrolatum (E16).

   b. Install packing (4) on switch (1).

NOTE

Install two sockets on pressure switch wires if needed.

2. **Install switch (1) on fitting (2).** Torque switch (1) to **100 INCH-POUNDS.**

   a. Lubricate switch (1). Use petrolatum (E16).

   b. Install switch (1) on fitting (2).

   c. Torque switch (1) to **100 INCH-POUNDS.** Use 7/8, 3/8 drive crowfoot.

   d. Lockwire switch (1) to fitting (2). Use lockwire (E8).

   e. Attach electrical leads (3) to electrical leads on switch (1).

3. **Inspect (TI).**

4. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-54. LEFT AUXILIARY FUEL TANK CHECK VALVE REMOVAL/INSTALLATION 10-2-54

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

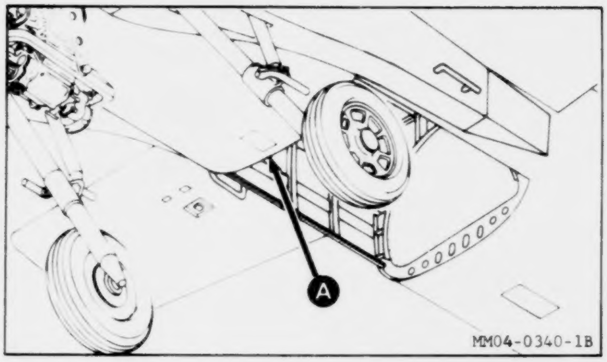
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

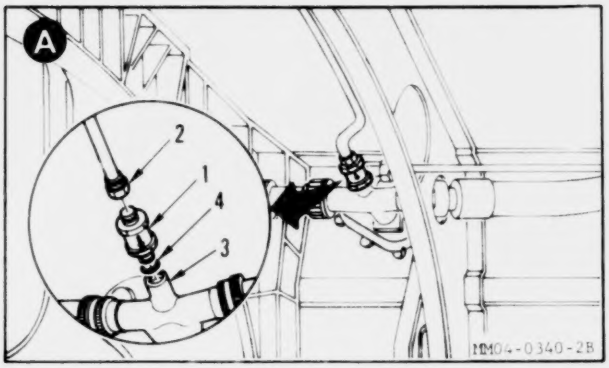
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



1. **Remove left auxiliary fuel tank check valve (1).**
   a. Hold valve (1).
   b. Disconnect nut (2).
   c. Remove valve (1) from fitting (3).
   d. Remove and discard packing (4) from valve (1).



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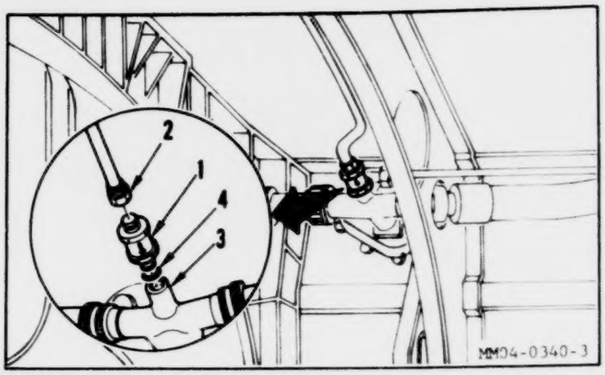
10-2-54. LEFT AUXILIARY FUEL TANK CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-54



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check removed and attaching parts for cracks, dents, nicks, or damaged threads (para 10-2-1).

D. INSTALLATION

CAUTION

Arrow on check valve must point toward refueling line fitting boss.

1. **Install left auxiliary fuel tank check valve (1).**
   - a. Lubricate new packing (4). Use petrolatum (E16).
   - b. Install packing (4) on valve (1).
   - c. Lubricate threads on both ends of valve (1). Use petrolatum (E16).
   - d. Install valve (1) in refueling line fitting (3).
   - e. Hold check valve (1).
   - f. Install nut (2) on valve (1).
2. **Inspect (TI).**
3. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
4. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-55. LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT 10-2-55

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

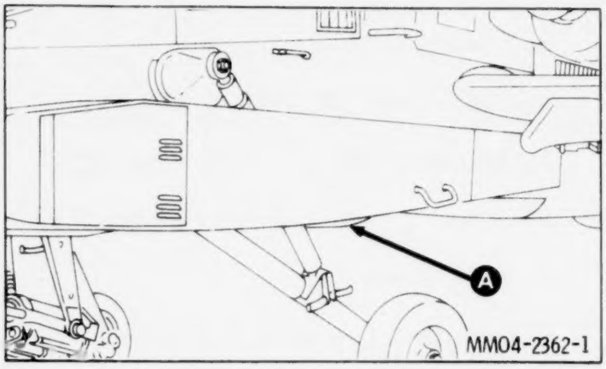
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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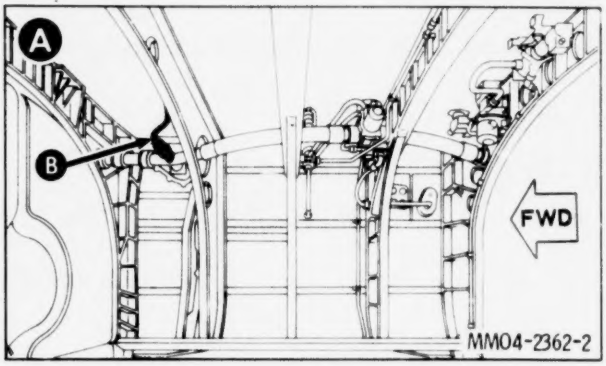

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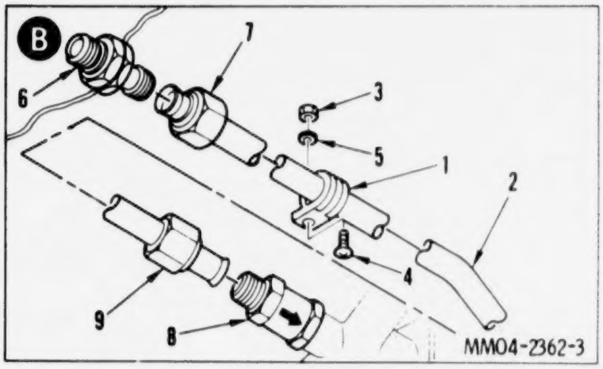
10-2-55. LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-55

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



1. **Remove clamp (1) from left auxiliary fuel transfer tube (2).**
    a. Hold nut (3).
    b. Remove screw (4).
    c. Remove nut (3) and washer (5).
    d. Remove clamp (1) from tube (2).
2. **Disconnect tube (2) from union (6).**
    a. Hold union (6).
    b. Disconnect tube nut (7) from union (6).
3. **Remove tube (2) from check valve (8).**
    a. Hold valve (8).
    b. Disconnect tube nut (9) from valve (8).

GO TO NEXT PAGE

10-2-55. LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-55

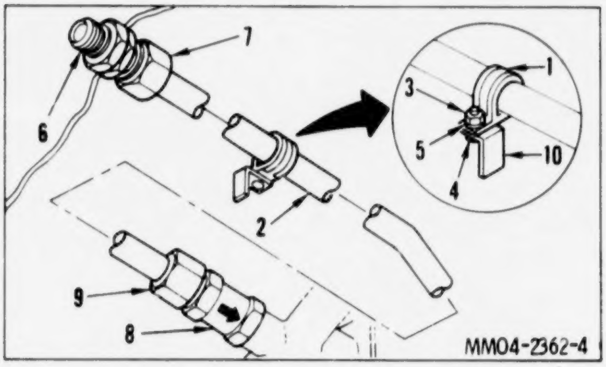
B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check surrounding area for dents, nicks, cracks, or damaged threads (para 10-2-1).

D. INSTALLATION



MM04-2362-4

1. **Connect tube (2) to valve (8).**
   a. Hold valve (8).
   b. Connect nut (9) to valve (8).
2. **Connect tube (2) to union (6).**
   a. Hold union (6).
   b. Connect tube nut (7) to union (6).
3. **Install clamp (1) on tube (2).**
   a. Aline screw hole in clamp (1) with hole in bracket (10).
   b. Install washer (5) and screw (4). in clamp (1).
   c. Install nut (3) on screw (4).
   d. Hold nut (3). Tighten screw (4).
4. **Inspect (TI).**
5. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
6. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-56. FS 186 TO 199 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT 10-2-56

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

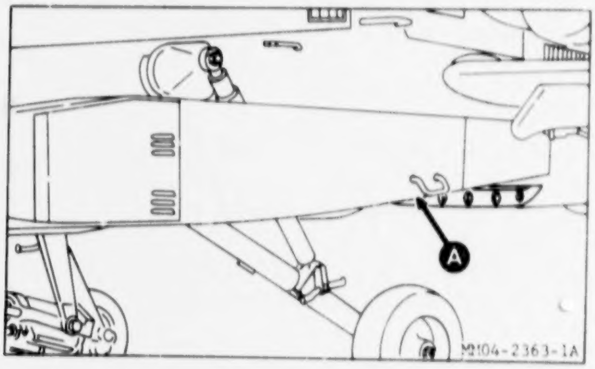
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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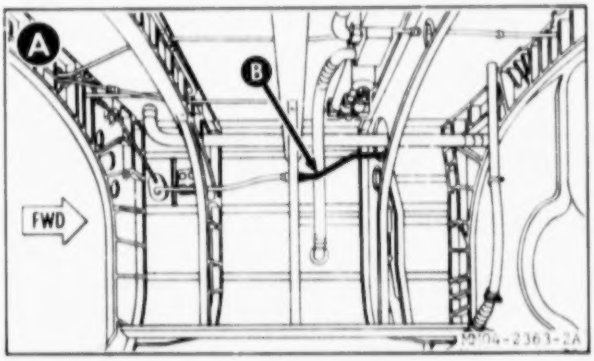
10-2-56. FS 186 TO 199 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-56

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

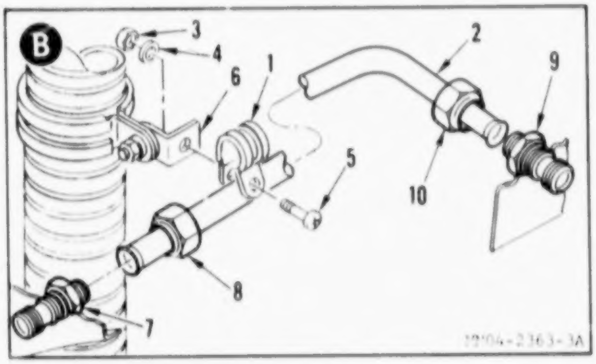


1. Remove clamp (1) from left auxiliary fuel transfer tube (2).

   a. Remove nut (3) and washer (4) from screw (5).

   b. Remove screw (5) from clamp (1) and bracket (6).

   c. Remove clamp (1) from tube (2).



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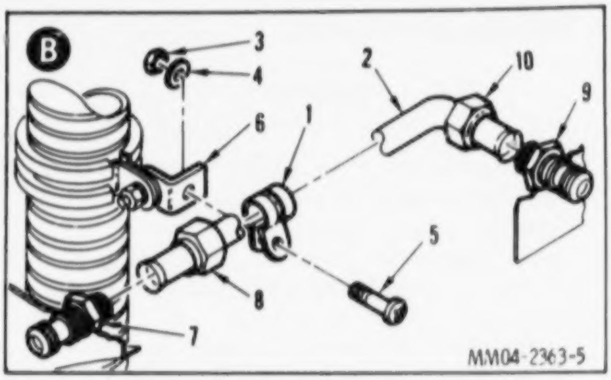
10-2-56. FS 186 TO 199 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-56



2. **Disconnect tube (2) from union (7).**

   a. Hold union (7).

   b. Disconnect tube nut (8).

3. **Disconnect tube (2) from union (9).**

   a. Hold union (9).

   b. Disconnect tube nut (10).

   c. Remove tube (2).

B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check attaching parts for nicks, dents, cracks, or damaged threads (para 10-2-1).

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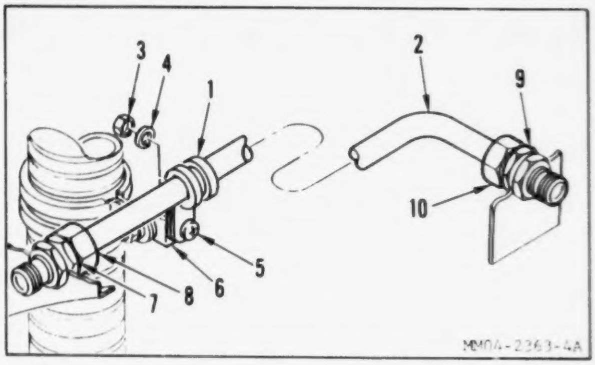
10-2-56. FS 186 TO 199 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-56



D. **INSTALLATION**

1. **Connect tube (2) to union (9).**
   a. Hold union (9).
   b. Tighten nut (10).
2. **Connect tube (2) to union (7).**
   a. Hold union (7).
   b. Tighten tube nut (8).
3. **Install clamp (1) on tube (2).**
   a. Position clamp on tube (2) and bracket (6).
   b. Install screw (5) through clamp (1) and bracket (6).
   c. Install washer (4) and nut (3) on screw (5).
4. **Inspect (TI).**
5. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
6. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-57. FS 199 TO 214 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT 10-2-57

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

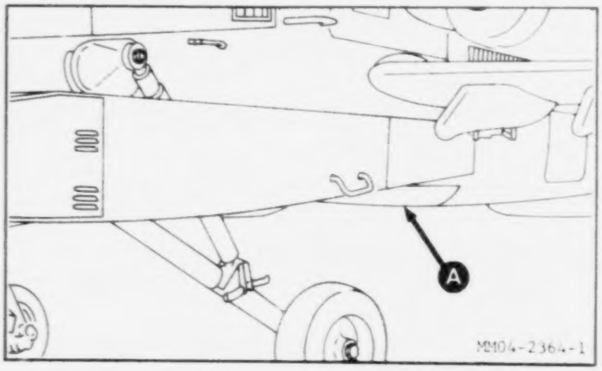
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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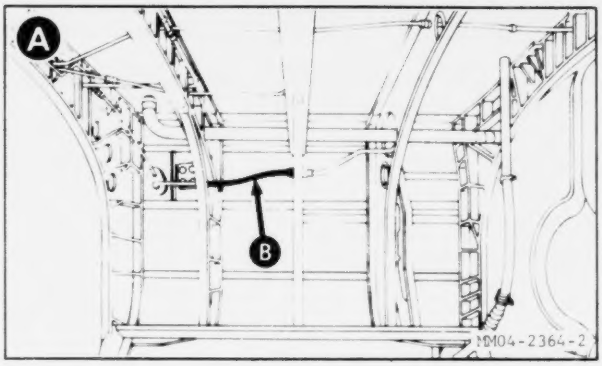
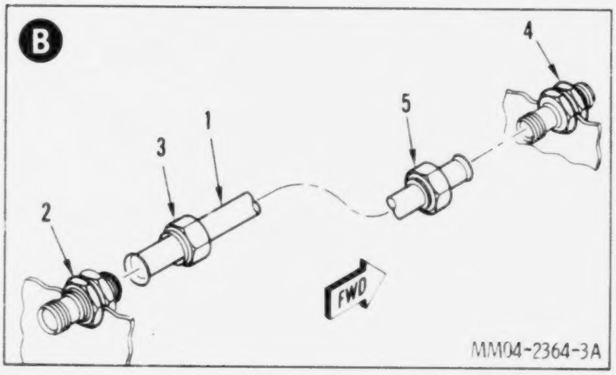
10-2-57. FS 199 TO 214 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-57

A. REMOVAL





WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. Disconnect left auxiliary fuel transfer tube (1) from aft union (2).
   a. Hold union (2).
   b. Disconnect tube nut (3).
2. Disconnect tube (1) from forward union (4).
   a. Hold union (4).
   b. Disconnect tube nut (5).
   c. Remove tube (1).

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10-2-57. FS 199 TO 214 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont) 10-2-57

B. CLEANING

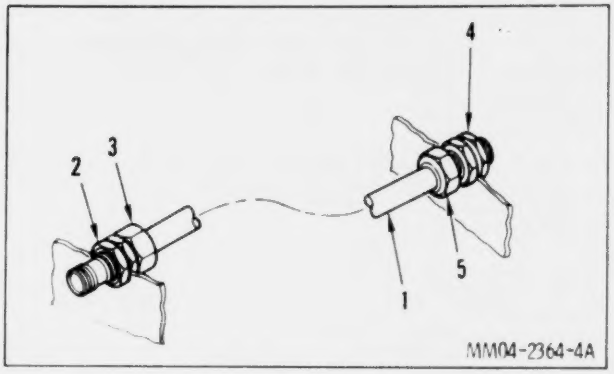
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check attaching parts for nicks, dents, cracks, or damaged threads (para 10-2-1).

D. INSTALLATION

1. **Connect tube (1) to forward union (4).**
   a. Hold union (4).
   b. Tighten nut (5).
2. **Connect tube (1) to aft union (2).**
   a. Hold union (2).
   b. Tighten tube nut (3).



3. **Inspect (TI).**
4. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-58. FS 214 TO 225 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT 10-2-58

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

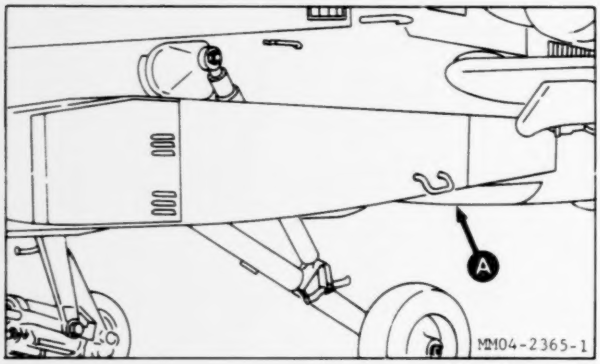
67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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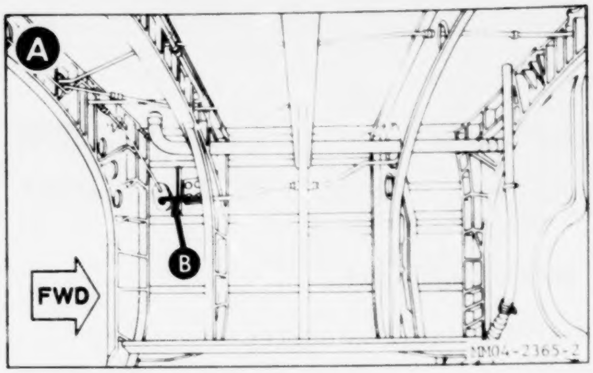
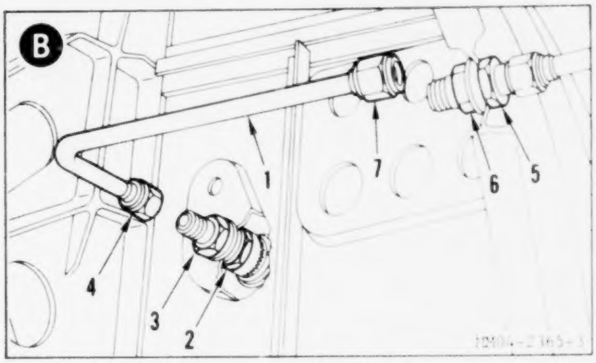
10-2-58. FS 214 TO 225 LEFT AUXILIARY FUEL TRANSFER TUBE REPLACEMENT (cont)

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.





1. **Disconnect left auxiliary fuel transfer tube (1) from quick disconnect connector (2).**
   - a. Hold jam nut (3).
   - b. Remove tube nut (4) from connector (2).
2. **Disconnect tube (1) from union (5).**
   - a. Hold jam nut (6).
   - b. Remove tube nut (7) from union (5).
   - c. Remove tube (1).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check attaching parts for nicks, dents, cracks, or damaged threads (para 10-2-1).

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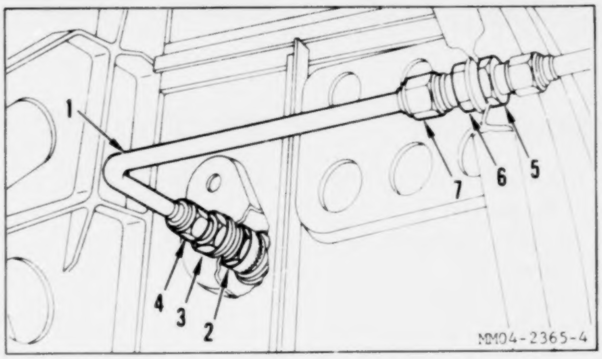
D. INSTALLATION



1. **Connect left auxiliary fuel transfer tube (1) to union (5) in ammunition bay.**

   a. Hold nut (6).

   b. Connect tube nut (7) to union (5).

2. **Connect tube (1) to connector (2).**

   a. Hold nut (3).

   b. Connect nut (4) to connector (2).

3. **Inspect (TI).**

4. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).

5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-59. RIGHT AUXILIARY FUEL TANK CHECK VALVE REMOVAL/INSTALLATION 10-2-59

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Handle, Socket Wrench 1/2 Drive	5120-00-221-7958
Crowfoot Attachment 1-3/16, 1/2 Drive	5120-00-229-2774

Materials/Parts:

Packing
(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

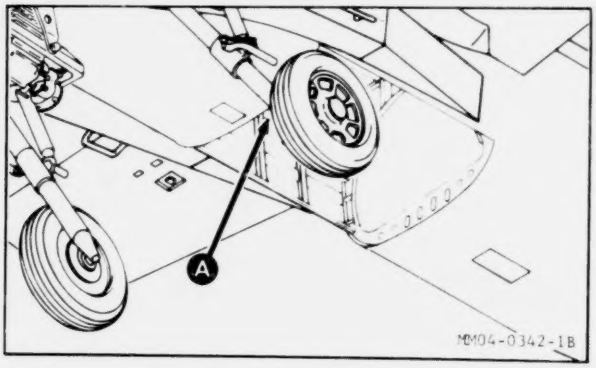
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine



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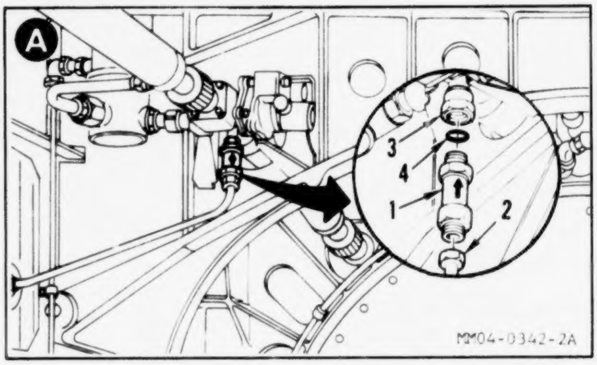
10-2-59. RIGHT AUXILIARY FUEL TANK CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-59

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove right auxiliary fuel tank check valve (1).**
   - a. Hold valve (1).
   - b. Disconnect nut (2).
   - c. Hold mounting boss (3).
   - d. Remove valve (1). Use socket wrench handle and 1-3/16, 1/2 drive crowfoot.
   - e. Remove and discard packing (4) from valve (1).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, dents, or damaged threads (para 10-2-1).

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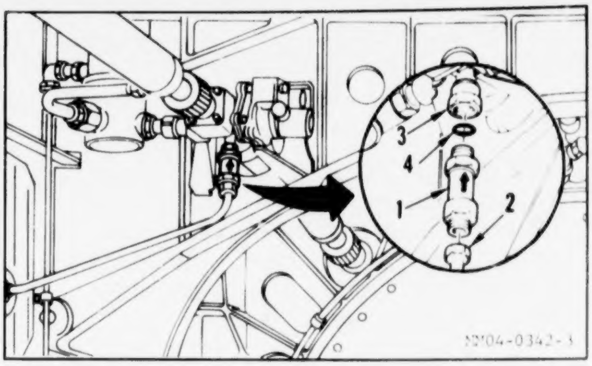
10-2-59. RIGHT AUXILIARY FUEL TANK CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-59



D. INSTALLATION

CAUTION

Arrow on check valve must point up.

1. **Install check valve (1).**
   a. Lubricate new packing (4). Use petrolatum (E16).
   b. Install packing (4) on end of valve (1) where arrow points.
   c. Lubricate threads on both ends of valve (1). Use petrolatum (E16).
   d. Hold mounting boss (3).
   e. Install valve (1) into boss (3).
   f. Hold valve (1).
   g. Install nut (2) on valve (1).
2. **Inspect (TI).**
3. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
4. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-60. LEFT AND RIGHT AUXILIARY FUEL TANK QUICK-DISCONNECT COUPLING REMOVAL/INSTALLATION 10-2-60

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133
Crowfoot Attachment 1-1/16, 3/8 Drive	5120-00-181-6764

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

References:

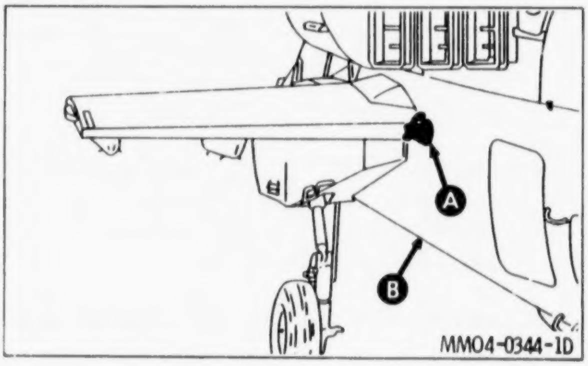
TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-5-7	Wing trailing edge removed
TM 9-1090-208-23	Ammunition storage magazine removed

NOTE

This task is typical for left or right. Left coupling shown.



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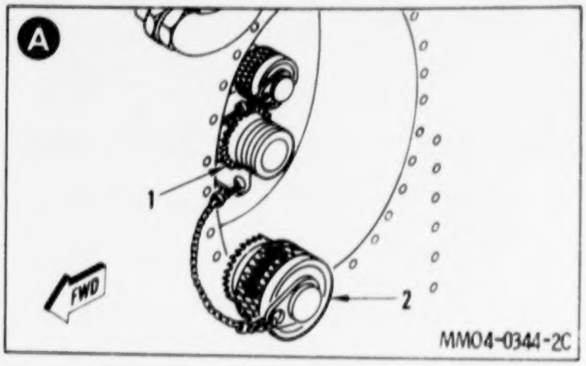
10-2-60. LEFT AND RIGHT AUXILIARY FUEL TANK QUICK-DISCONNECT COUPLING REMOVAL/INSTALLATION (cont) 10-2-60

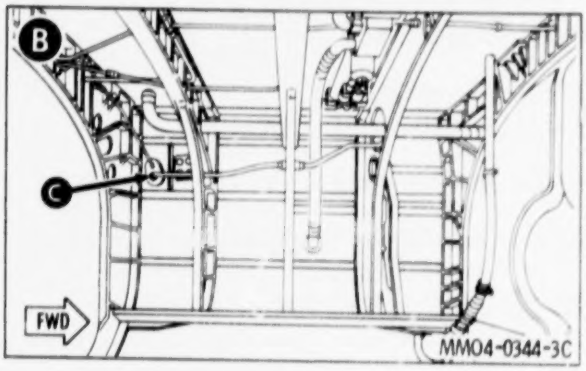
A. REMOVAL

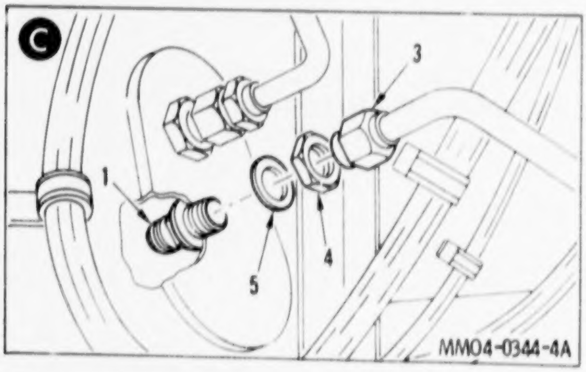
WARNING

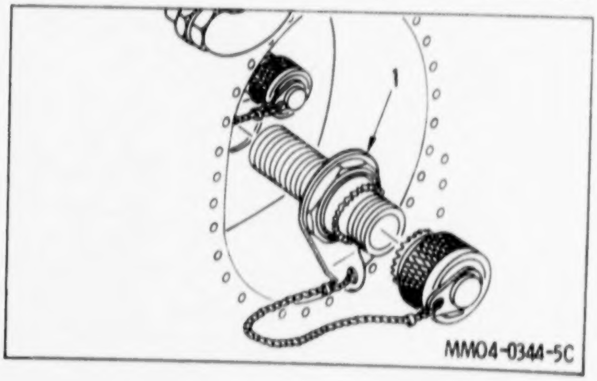
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove auxiliary fuel tank quick-disconnect coupling (1).**
   - a. Pull ratchet sleeve on dust cap (2) away from locking teeth on coupling (1).
   - b. Turn cap (2) until it clears coupling (1).
   - c. One person hold coupling (1) from outside helicopter. Use 1-1/16, 3/8 drive crowfoot.
   - d. Second person disconnect auxiliary fuel transfer tube jam nut (3) in ammunition bay. Use 1-inch open-end wrench.
   - e. Remove jam nut (4) and washer (5).
   - f. Remove coupling (1) from helicopter structure.









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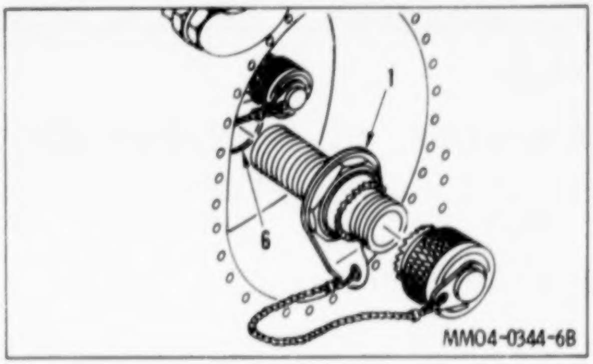
10-2-60. LEFT AND RIGHT AUXILIARY FUEL TANK QUICK-DISCONNECT COUPLING REMOVAL/INSTALLATION (cont) 10-2-60

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

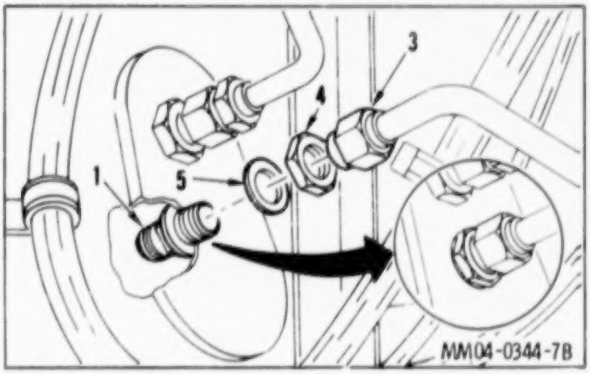
C. INSPECTION

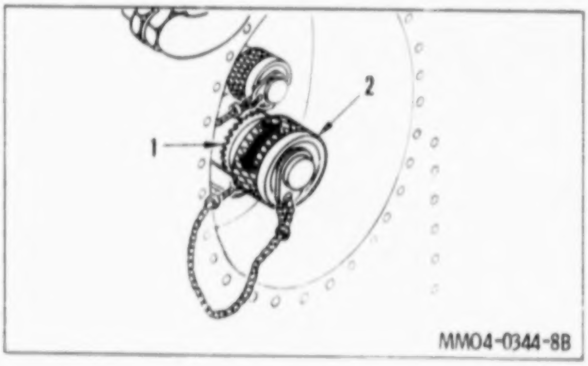
Check all removed and attaching parts for nicks, cracks, dents, or damaged threads (para 10-2-1).



D. INSTALLATION

1. **Install auxiliary fuel tank quick-disconnect coupling (1).**
   a. One person install coupling (1) from outside helicopter through opening (6) in helicopter structure.
   b. Hold coupling (1). Use 1-1/16, 3/8 drive crowfoot.
   c. Second person install washer (5) and jam nut (4) on coupling (1) in ammunition bay.
   d. Lubricate threads of coupling (1). Use petrolatum (E16).
   e. Connect nut (3) to coupling (1). Use 1-inch open-end wrench.
   f. Connect cap (2) to coupling (1). Turn cap (2) until locking teeth engage.





2. **Inspect (TI).**

3. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).

4. **Install wing trailing edge** (para 2-5-7).

5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-61. RIGHT AUXILIARY FUEL INLET HOSE REPLACEMENT 10-2-61

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

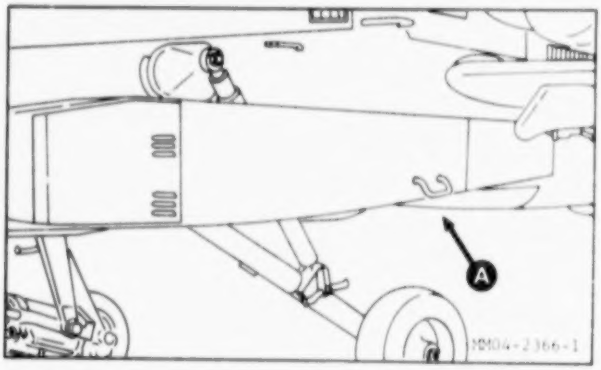
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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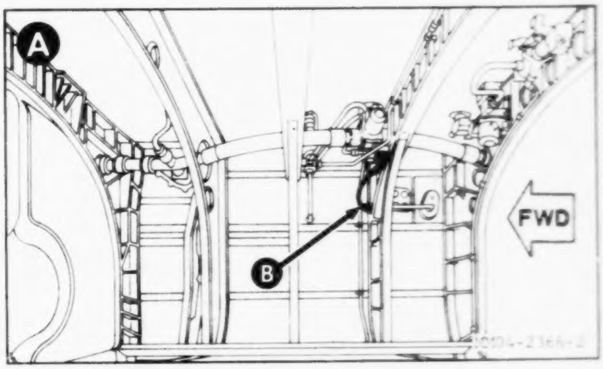
10-2-61. RIGHT AUXILIARY FUEL INLET HOSE REPLACEMENT (cont) 10-2-61

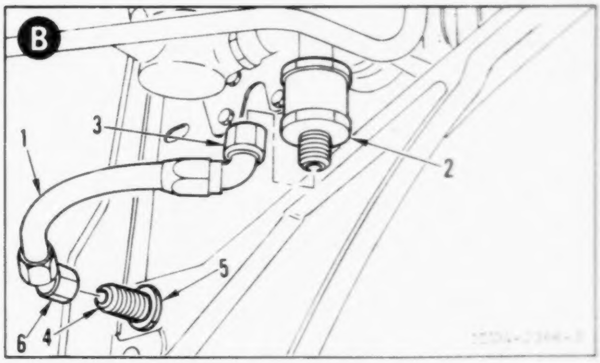
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Disconnect right auxiliary fuel inlet hose (1) from check valve (2).**
   a. Hold valve (2).
   b. Disconnect hose fitting (3) from valve (2).
2. **Disconnect hose (1) from elbow (4).**
   a. Hold nut (5).
   b. Disconnect hose fitting (6) from elbow (4).





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10-2-61. RIGHT AUXILIARY FUEL INLET HOSE REPLACEMENT (cont) 10-2-61

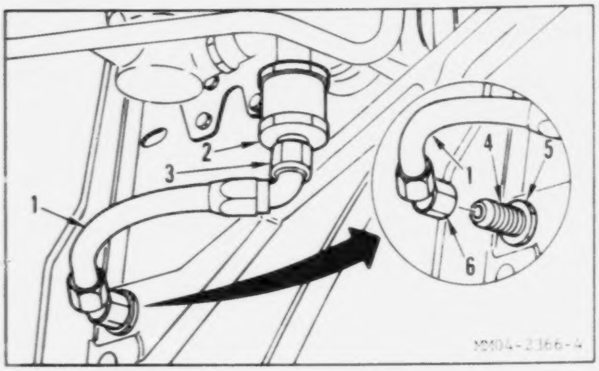
B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for nicks, dents, cracks, or damaged threads. None allowed.

D. INSTALLATION



1. Connect hose (1) to elbow (4).
    - a. Hold nut (5).
    - b. Connect fitting (6) to elbow (4).
2. Connect hose (1) to valve (2).
    - a. Hold valve (2).
    - b. Connect fitting (3) to valve (2).
3. Inspect (TI).
4. Perform auxiliary fuel system operational check (TM 55-1520-238-T).
5. Install ammunition storage magazine (TM 9-1090-208-23).

END OF TASK

10-2-62. RIGHT AUXILIARY FUEL QUICK-DISCONNECT TO FS 214 TUBE REPLACEMENT 10-2-62

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

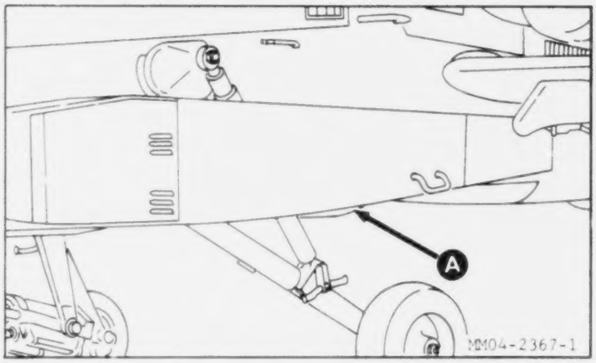
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed



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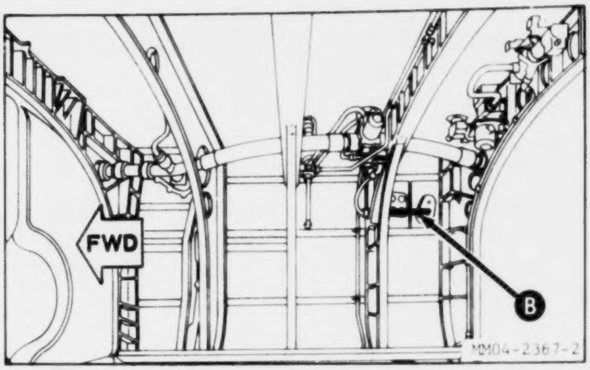
10-2-62. RIGHT AUXILIARY FUEL QUICK-DISCONNECT TO FS 214 TUBE REPLACEMENT (cont) 10-2-62

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



1. **Disconnect right auxiliary fuel system tube (1) from elbow (2) at FS 214.**

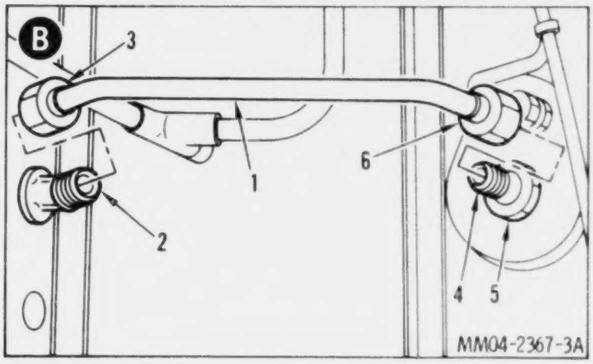
   a. Hold elbow (2).

   b. Disconnect tube nut (3) from elbow (2).

2. **Disconnect tube (1) from connector (4).**

   a. Hold nut (5).

   b. Disconnect tube nut (6) from connector (4).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check tube, elbow, and connector for damaged threads, nicks, or cracks (para 10-2-1).

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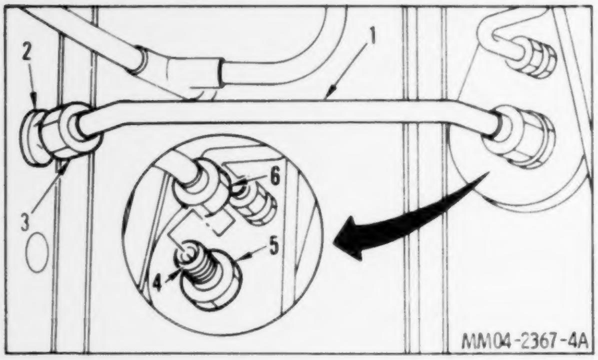
10-2-62. RIGHT AUXILIARY FUEL QUICK-DISCONNECT TO FS 214 TUBE REPLACEMENT (cont) 10-2-62

D. INSTALLATION



1. **Connect tube (1) to connector (4) at FS 214.**
   - a. Hold nut (5).
   - b. Connect tube nut (6) to connector (4).
2. **Connect tube (1) to elbow (2).**
   - a. Hold elbow (2).
   - b. Connect nut (3) to elbow (2).
3. **Inspect (TI).**
4. **Perform auxiliary fuel system operational check** (TM 55-1520-238-T).
5. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-63. FORWARD FUEL CELL LOWER VENT TUBE REPLACEMENT 10-2-63

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

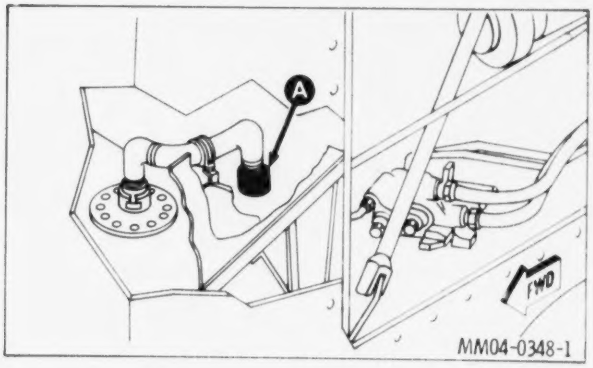
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel L200 removed
TM 9-1090-208-23	Ammunition storage magazine removed



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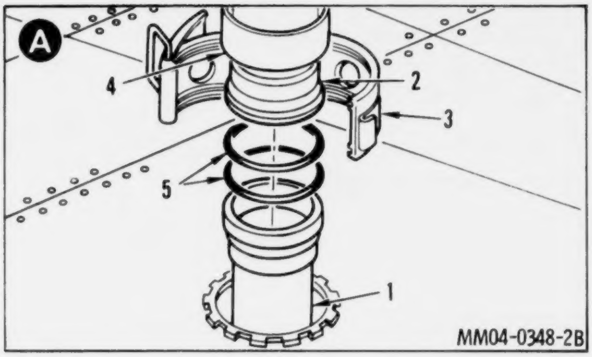
10-2-63. FORWARD FUEL CELL LOWER VENT TUBE REPLACEMENT (cont) 10-2-63

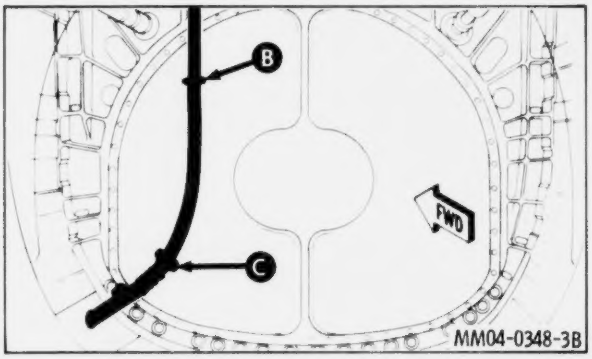
A. REMOVAL

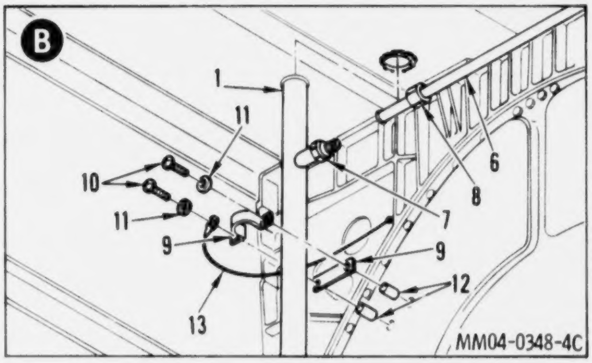
WARNING

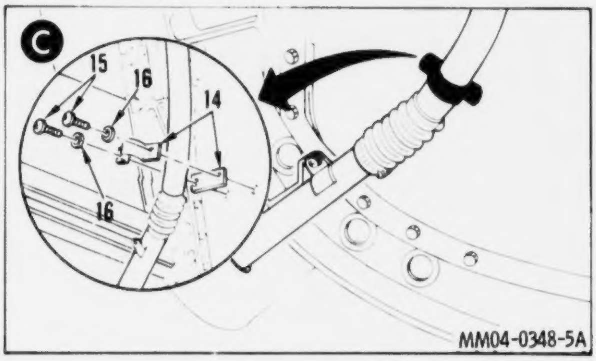
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Disconnect forward fuel cell vent tube (1) from forward fuel cell upper vent tube (2) on transmission deck.**
   a. Unlatch and remove retainer (3).
   b. Slide body (4) on tube (2).
   c. Remove and discard two packings (5) from tubes (1) and (2).
   d. Remove body (4) from tube (2).
2. **Disconnect vent tube (6) from tube (1) in ammunition bay.** Hold fitting (7). Disconnect nut (8).
3. **Remove vent tube upper clamp (9).**
   a. Remove two screws (10), washers (11), spacers (12), and bonding jumper (13).
   b. Remove clamp (9) from tube (1).
4. **Remove vent tube lower clamp (14).**
   a. Remove two screws (15) and washers (16).
   b. Remove clamp (14).









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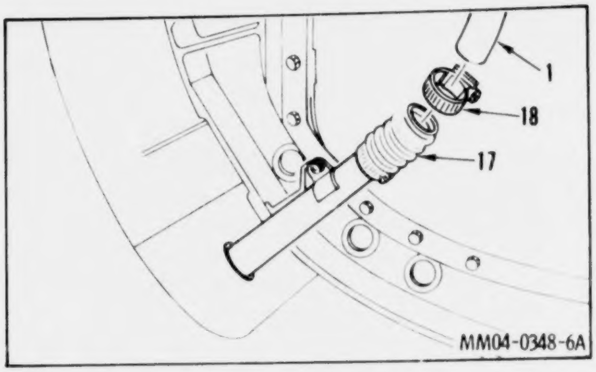
10-2-63. FORWARD FUEL CELL LOWER VENT TUBE REPLACEMENT (cont) 10-2-63

5. **Remove tube (1) from lightning arrestor sleeve (17).**
   a. Loosen hose clamp (18).
   b. Pull vent tube (1) until it clears sleeve (17).
   c. Remove hose clamp (18) from sleeve (17).
   d. Remove vent tube (1) from ammunition bay.



B. **CLEANING**

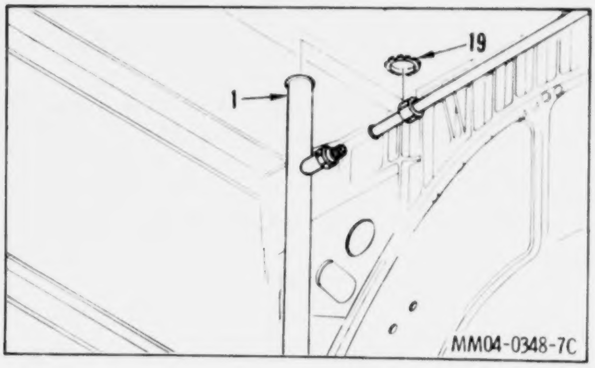
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

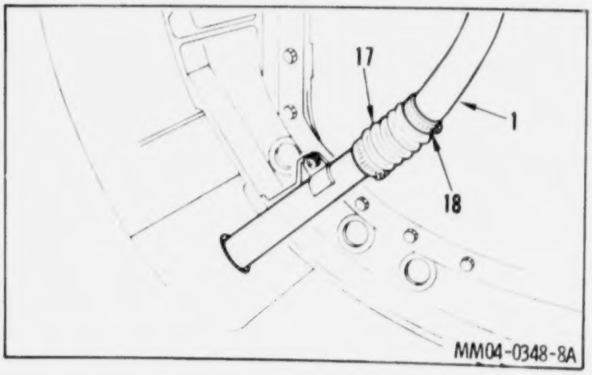
Check vent tube and sleeve for dents, nicks, or cracks (para 10-2-1).

D. **INSTALLATION**

1. **Connect tube (1) to sleeve (17).**
   a. Insert tube (1) up through opening (19) in transmission deck.
   b. Slide clamp (18) on tube (1).
   c. Insert tube (1) into sleeve (17).



   d. Position clamp (18) over sleeve (17) and tube (1).
   e. Tighten hose clamp (18).



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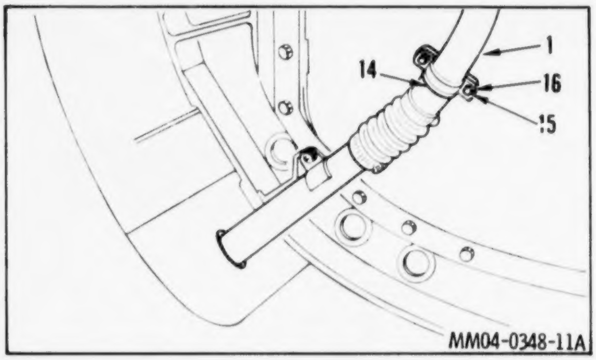
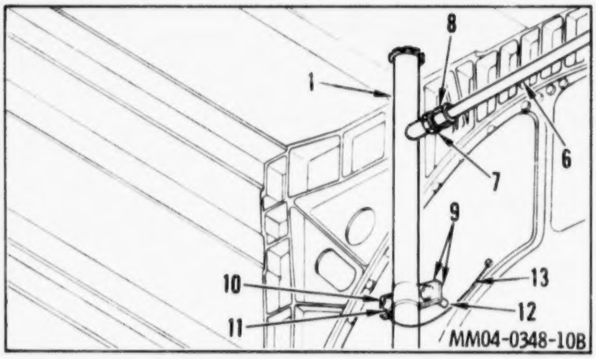
10-2-63. FORWARD FUEL CELL LOWER VENT TUBE REPLACEMENT (cont) 10-2-63



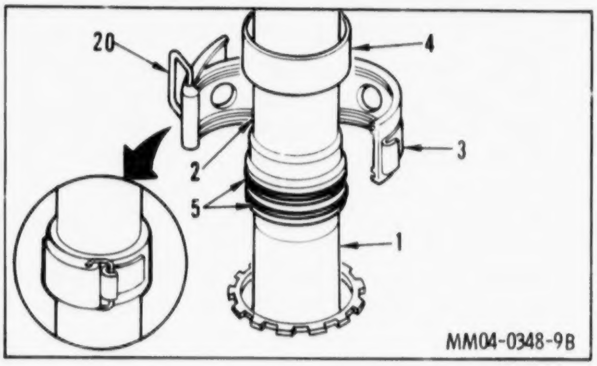
MM04-0348-11A

2. **Install clamp (14).**
   a. Position clamp (14) over vent tube (1).
   b. Install two washers (16) and screws (15).
3. **Connect tube (6) to line (1).** Hold fitting (7). Install nut (8).
4. **Install clamp (9).**
   a. Position clamp (9) over vent tube (1).
   b. Install two spacers (12) one bonding jumper (13), two washers (11), and two screws (10).



MM04-0348-10B

5. **Connect vent tube (1) from transmission deck to upper vent tube (2).**
   a. Place body (4) on upper end of tube (2).
   b. Lubricate two new packings (5). Use petrolatum (E16).
   c. Install packings (5) on tubes (1) and (2).
   d. Center body (4) over packings (5).
   e. Install retainer (3) over body (4). Ensure safety spring (20) is fully locked.



MM04-0348-9B

6. **Inspect (TI).**
7. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
8. **Secure access panel L200** (para 2-2-2).
9. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-64. FORWARD FUEL CELL LIGHTNING ARRESTOR REMOVAL/INSTALLATION 10-2-64

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

References:

TM 9-1090-208-23
TM 55-1520-238-T

Materials/Parts:

(E32) Cloth, Lint-free

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

Personnel Required:

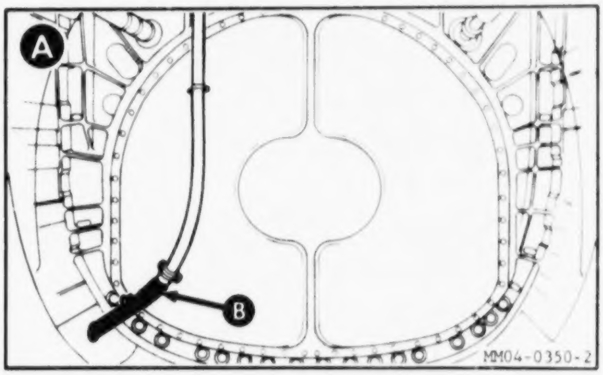
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

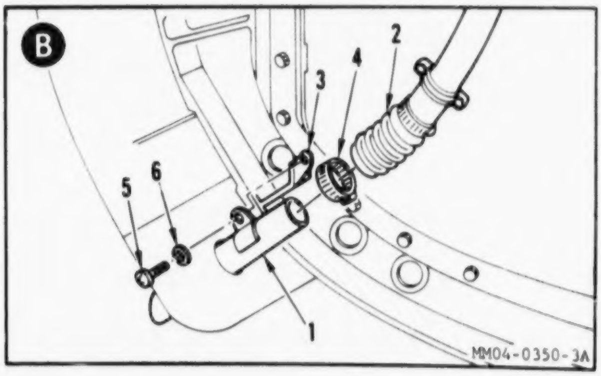
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove forward fuel cell lightning arrestor (1) from lightning arrestor sleeve (2) and mounting bracket (3).**
   a. Loosen hose clamp (4).
   b. Pull sleeve (2) clear of arrestor (1). Remove hose clamp (4) from sleeve (2).
   c. Remove screw (5) and washer (6).
   d. Lift and remove arrestor (1) through ammunition bay.





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10-2-64. FORWARD FUEL CELL LIGHTNING ARRESTOR REMOVAL/INSTALLATION (cont) 10-2-64

B. CLEANING

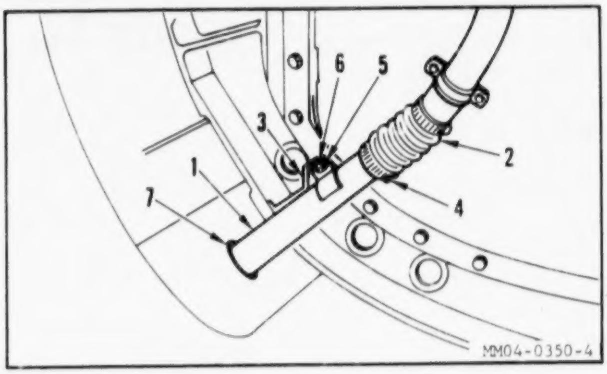
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for nicks, dents, cracks, or damaged threads. None allowed.

D. INSTALLATION

1. Install arrestor (1) on bracket (3).
   a. Place end of arrestor (1) through opening (7) in helicopter structure.
   b. Aline arrestor (1) with bracket (3) screw hole.
   c. Install washer (6) and screw (5).
   d. Place clamp (4) on sleeve (2).
   e. Place sleeve (2) over end of arrestor (1).
   f. Tighten hose clamp (1).
2. Inspect (TI).
3. Perform pressure refueling/defueling operational check (TM 55-1520-238-T).
4. Install ammunition storage magazine (TM 9-1090-208-23).



END OF TASK

10-2-65. PRESSURE FUEL MANIFOLD REMOVAL/INSTALLATION 10-2-65

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Seal
	Packing (4)
(E16)	Petrolatum
(E28)	Compound, Sealing
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 9-1090-208-23
TM 55-1520-238-T

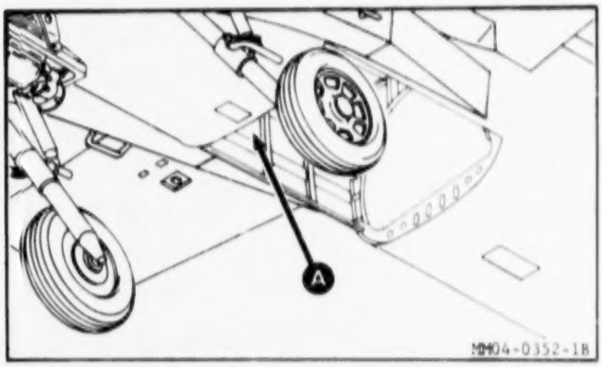
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access cover R180 opened
10-2-54	Left auxiliary fuel tank check valve removed
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL XFEED circuit breaker on pilot center circuit breaker panel.**



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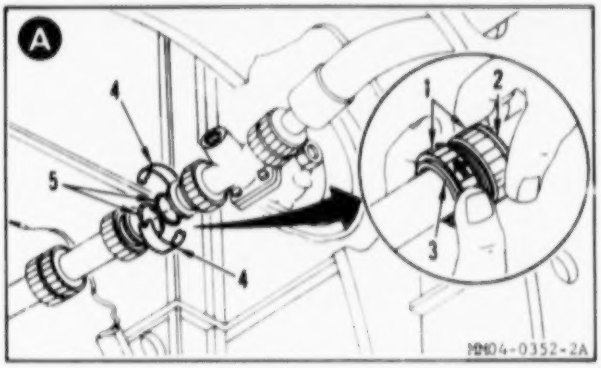
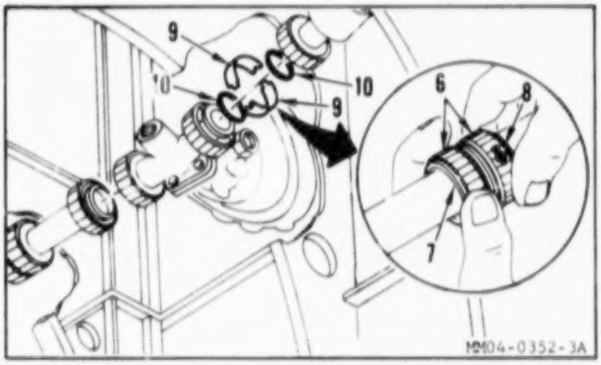
10-2-65. PRESSURE FUEL MANIFOLD REMOVAL/INSTALLATION (cont) 10-2-65



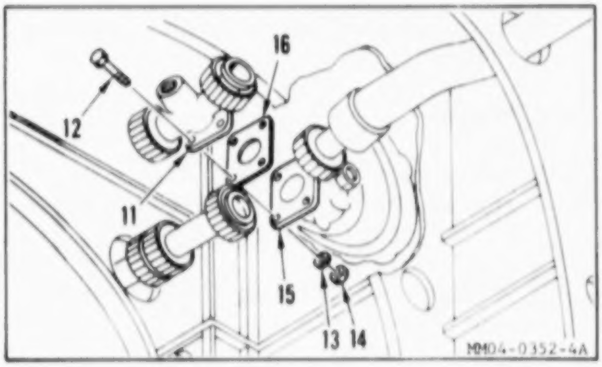
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. **Disconnect refuel line fitting connector (1).**
   a. Turn connector nut (2) until it clears connector body (3).
   b. Pull body (3) back.
   c. Remove retainer halves (4).
   d. Remove and discard two packings (5).



4. **Disconnect pressure refueling hose connector (6).**
   a. Turn connector nut (7) until it clears connector body (8).
   b. Pull body (8) back.
   c. Remove retainer halves (9).
   d. Remove and discard two packings (10).



5. **Remove refuel line fitting (11).**
   a. Hold four bolts (12).
   b. Remove four nuts (14) and washers (13).
   c. Pull fitting (11) away from mounting flange (15).
   d. Remove and discard seal (16).

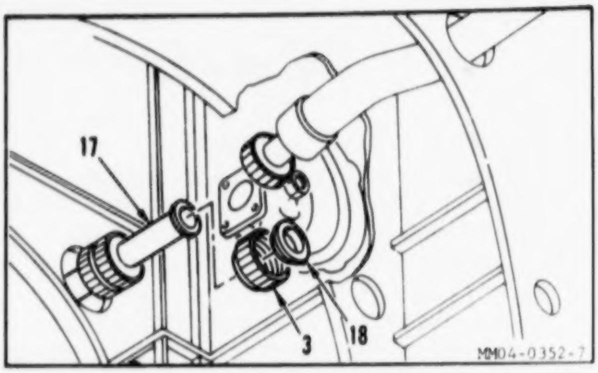
GO TO NEXT PAGE

10-2-65. PRESSURE FUEL MANIFOLD REMOVAL/INSTALLATION (cont) 10-2-65

6. **Remove connector body (3) from refuel line (17).**

   a. Remove retainer (18).

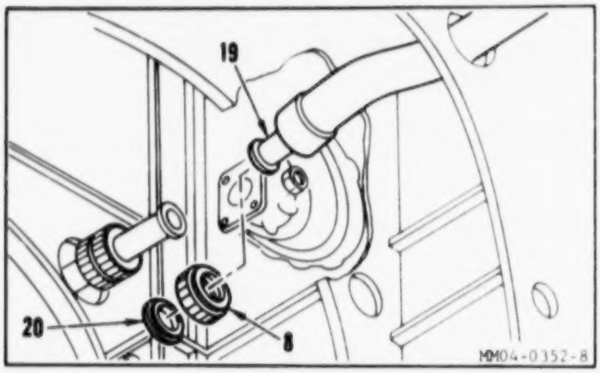
   b. Pull body (3) until it clears refuel line (17).



7. **Remove connector body (8) from pressure refueling hose (19).**

   a. Remove retainer (20).

   b. Pull body (8) until it clears hose (19).



8. **Remove pressure fuel manifold (21).** One person hold manifold (21) in ammunition bay.

   a. Remove eight bolts (22) and washers (23).

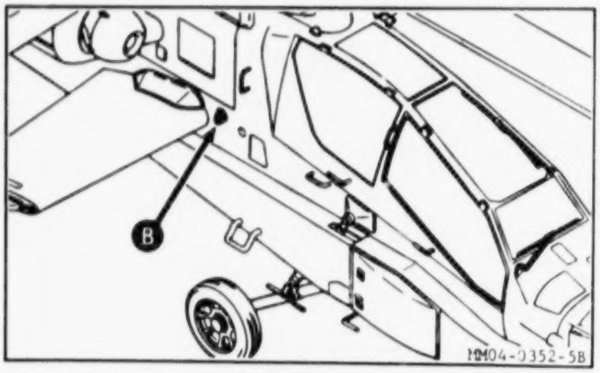
   b. Remove manifold (21) from ammunition bay.

9. **Remove old sealing compound from manifold (21).**

B. CLEANING

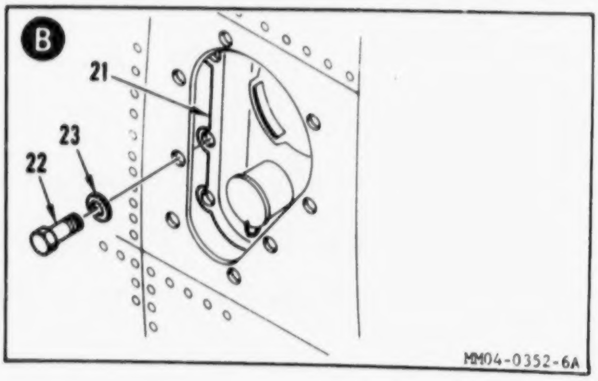
   1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

   2. **Remove old sealing compound from mounting surface.**



C. INSPECTION

Check refuel line connector and pressure refueling hose for cracks, distortions, nicks, or gouges (para 10-2-1).



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10-2-65. PRESSURE FUEL MANIFOLD REMOVAL/INSTALLATION (cont) 10-2-65

D. INSTALLATION

1. **Install manifold (21).**

    a. Apply sealing compound to mounting flange (24). Use sealing compound (E28).

    b. Aline manifold (21) mounting holes with fuselage mounting holes in ammunition bay.

    c. Install eight washers (23) and bolts (22) in a staggered order.

2. **Install body (8) on pressure refueling hose (19).**

    a. Slide connector (8) over ferrule end of hose (19).

    b. Install retainer (20).

3. **Install connector body (3) on refuel line (17).**

    a. Slide body (3) over ferrule end of refuel line (17).

    b. Install retainer (18).

4. **Install fitting (11).**

    a. Lubricate new seal (16). Use petrolatum (E16).

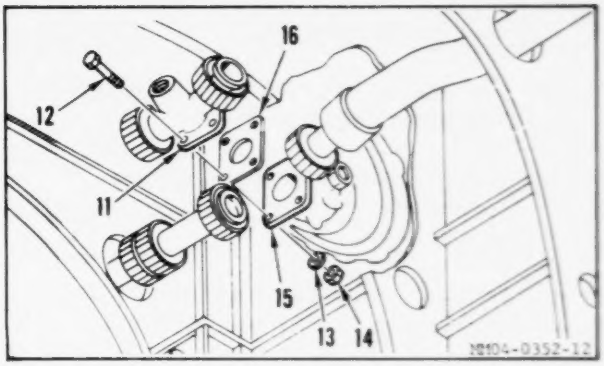
    b. Place seal (16) on mounting flange (15).

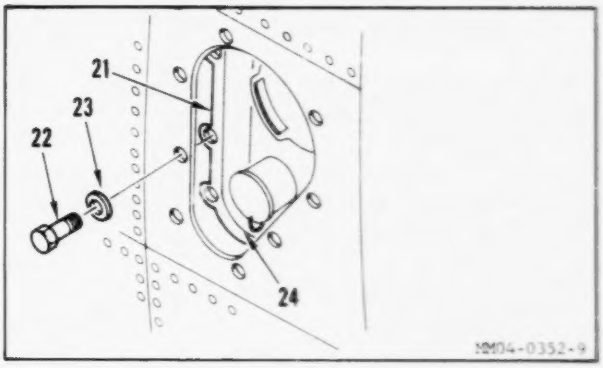
    c. Place fitting (11) on seal (16).

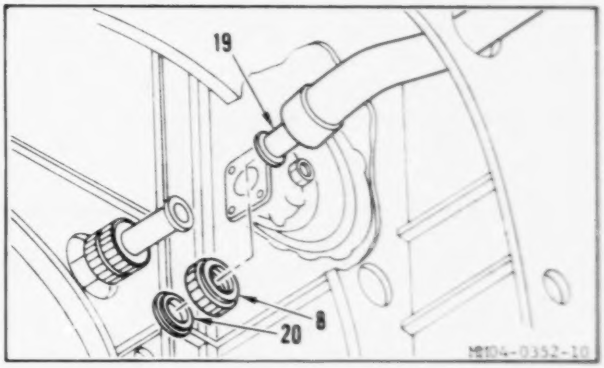
    d. Install four bolts (12), washers (13), and nuts (14).

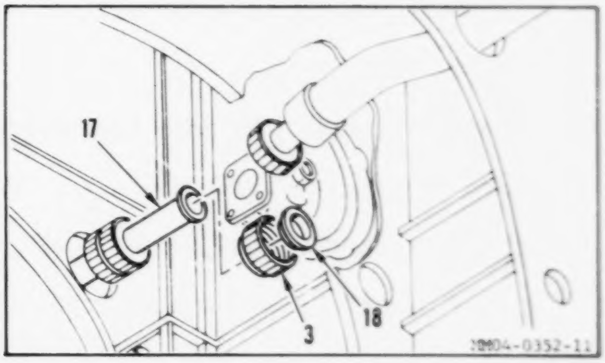
    e. Hold bolts (12).

    f. Tighten nuts (14).









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10-2-65. PRESSURE FUEL MANIFOLD REMOVAL/INSTALLATION (cont) 10-2-65

5. **Connect connector (6).**

   a. Lubricate two new packings (10). Use petrolatum (E16).

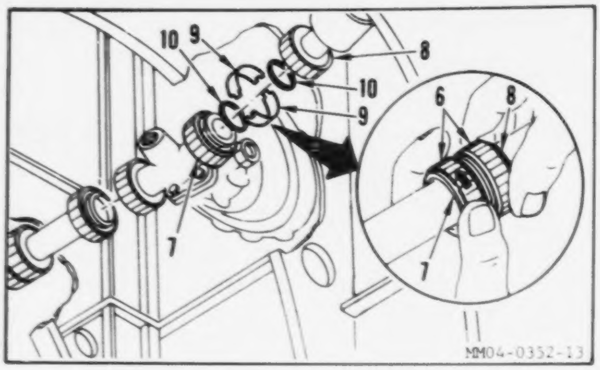
   b. Install one packing (10) on connector (8) and one packing (10) on nut (7).

   c. Install retainer halves (9) between body (8) and nut (7).

   d. Lubricate body (8) threads. Use petrolatum (E16).

   e. Slide and hold body (8) over retainer halves (9) and packings (10).

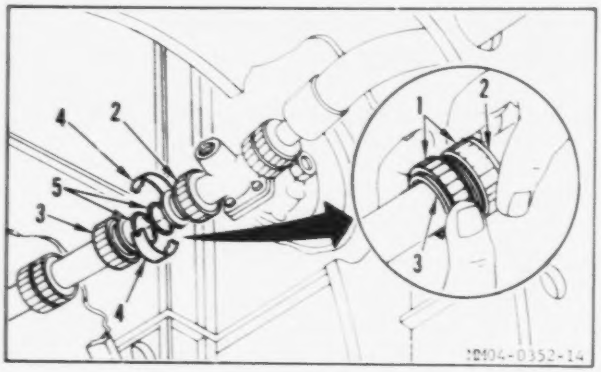
   f. Connect nut (7) and body (8) and tighten.



6. **Connect refuel line fitting connector (1).**

   a. Lubricate two new packings (5). Use petrolatum (E16).

   b. Install one packing (5) on connector (3) and one packing on nut (2).



   c. Install retainer halves (4) between connector (3) and connector nut (2).

   d. Lubricate connector body (3) threads. Use petrolatum (E16).

   e. Slide and hold connector (3) over retainers (4) and packings (5).

   f. Tighten nut (2) on connector (3).

7. **Inspect (TI).**

8. **Install left auxiliary fuel tank check valve** (para 10-2-54).

9. **Secure access cover R180** (para 2-2-2).

10. **Perform pressure refuel/defuel operational check** (TM 55-1520-238-T).

11. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-66. CLOSED CIRCUIT ADAPTER VALVE REMOVAL/INSTALLATION 10-2-66

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-343-4692

References:

TM 55-1520-238-T

Materials/Parts:

Packing
(E16) Petrolatum
(E32) Cloth, Lint Free

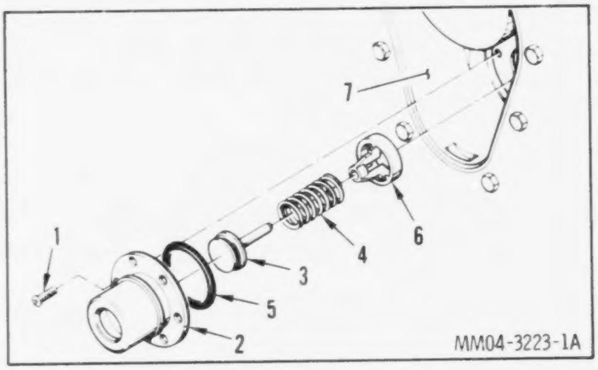
Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access cover R180 removed

A. **REMOVAL**



CAUTION

Nipple is spring-loaded and must be held firmly while removing attaching screws.

1. **Remove six screws (1), nipple (2), poppet (3), spring (4), packing (5), and spider (6) from housing (7).**
2. **Discard packing (5).**

GO TO NEXT PAGE

10-2-66. CLOSED CIRCUIT ADAPTER VALVE REMOVAL/INSTALLATION (cont) 10-2-66

B. CLEANING

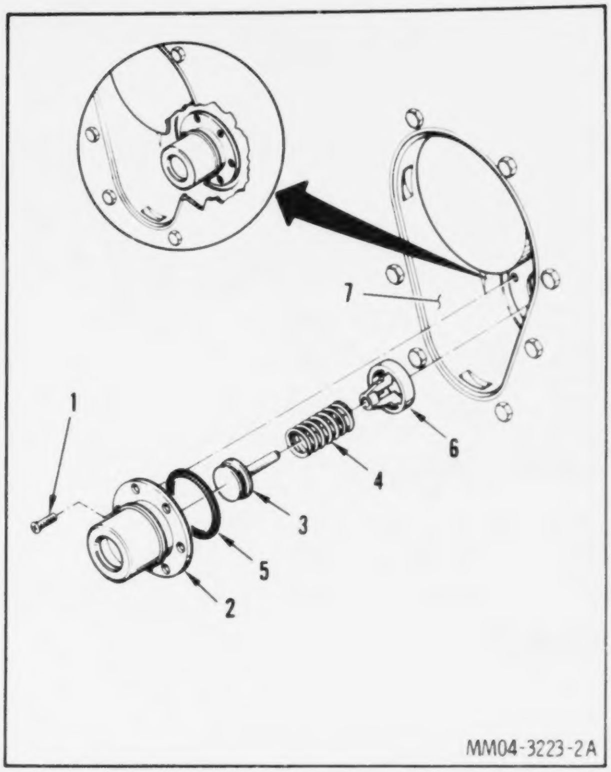
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. Check housing, nipple, poppet, and spider for cracks. None allowed.
2. Check housing and nipple attachment area for corrosion (para 1-5-38).

D. INSTALLATION

1. Install new packing (5) in nipple (2).
   a. Lubricate packing (5). Use petrolatum (E16).
   b. Install packing (5) in nipple (2).
2. Install spider (6), spring (4), poppet (3), and nipple (2). Install six screws (1).
3. Inspect (TI).
4. Perform fuel system refuel/defuel operational check (TM 55-1520-238-T).
5. Secure access cover R180 (para 2-2-2).



END OF TASK

10-2-67. SINGLE POINT ADAPTER VALVE REMOVAL/INSTALLATION 10-2-67

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-343-4692

References:

TM 55-1520-238-T

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint Free

Personnel Required:

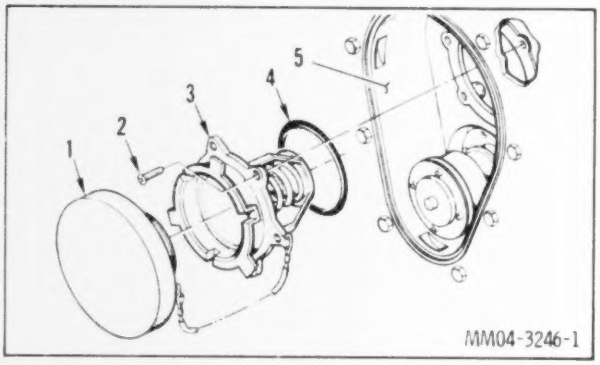
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access cover R180 removed

A. REMOVAL

1. **Remove cap (1), six screws (2), adapter (3), and packing (4) from housing (5).**
2. **Discard packing (4).**



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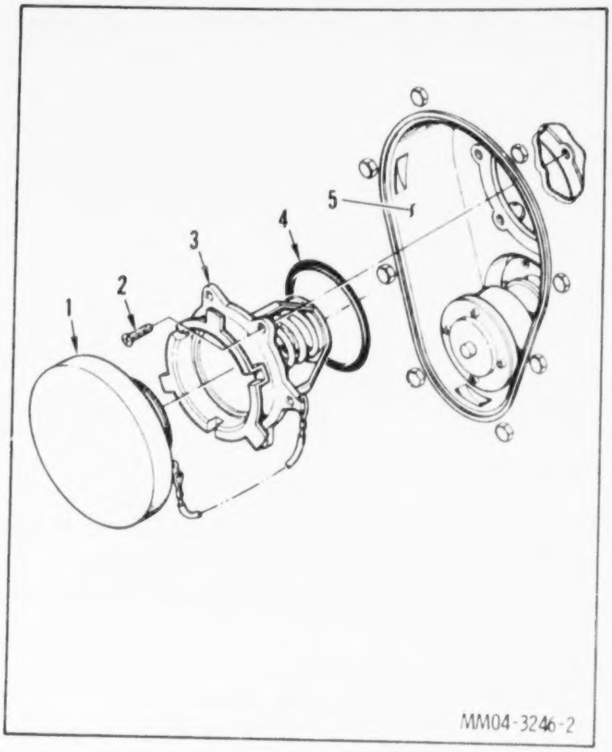
10-2-67. SINGLE POINT ADAPTER VALVE REMOVAL/INSTALLATION (cont) 10-2-67

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check housing, adapter, and cap for cracks.** None allowed.
2. **Check housing, adapter, and cap for corrosion** (para 1-5-38).



D. INSTALLATION

1. **Install new packing (4) on adapter assembly (3).**
   - a. Lubricate packing (4). Use petrolatum (E16).
   - b. Install packing (4) on adapter assembly (3).
2. **Install adapter (3).** Use six screws (2).
3. **Install cap (1).**
4. **Inspect (TI).**
5. **Perform fuel system refuel/defuel operational check** (TM 55-1520-238-T).
6. **Secure access cover R180** (para 2-2-2).

END OF TASK

10-2-68. AFT FUEL CELL ACCESS PANEL AND ACCESS COVER REMOVAL/INSTALLATION 10-2-68

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133
Wrench, 1-3/8 & 1-7/16 Open-end	5120-00-277-2324
Wrench, Torque, 1/4 Drive	5120-00-542-4489
Crowfoot Attachment, 13/16, 3/8 Drive	5120-00-184-8401

Materials/Parts:

	Packing (3)
	Packing with Retainer (76)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E85)	Adhesive

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

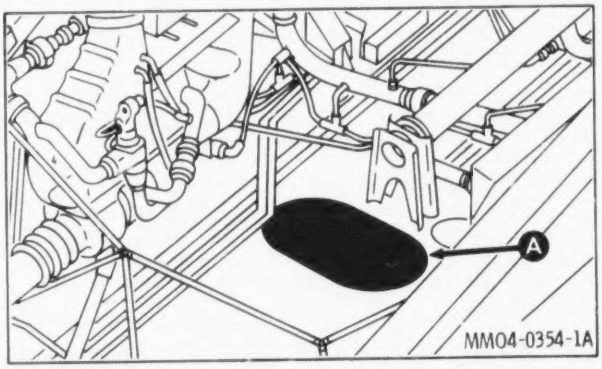
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-3-10	Catwalk removed
6-2-4	No. 3 drive shaft removed
10-2-18	Aft fuel cell upper vent tube removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED and FUEL XFER circuit breakers on pilot center circuit breaker panel.**



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10-2-68. AFT FUEL CELL ACCESS PANEL AND ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-68

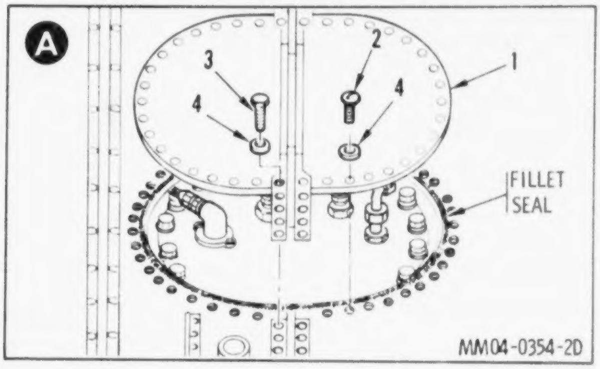
WARNING

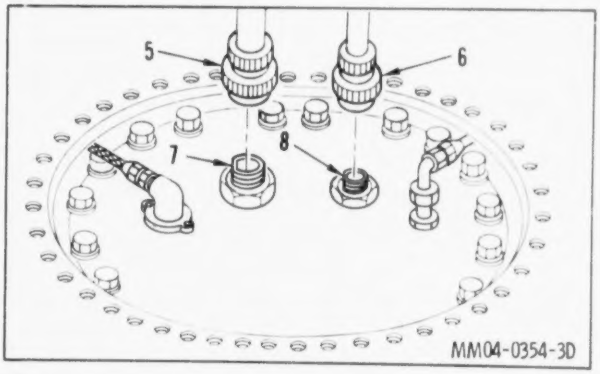
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

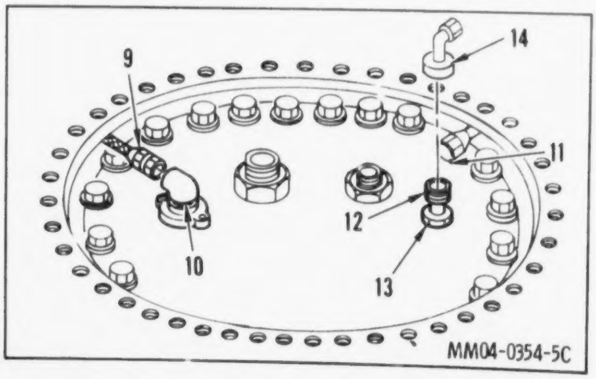
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

3. **Remove aft fuel cell fuel access panel (1).**
   a. Remove fillet seal from around panel (1).
   b. Remove 56 screws (2). Remove and discard 56 packings with retainers (4).
   c. Remove 20 bolts (3). Remove and discard 20 packings with retainers (4).
4. **Detach electrical connectors P943 (5) and P264 (6) from pilot valve transmitter connector J943 (7) and fuel transmitter connector J1 (8).**
5. **Detach nitrogen (N_2) inert breakaway valve hose (9) from valve (10).**
6. **Detach nitrogen (N_2) inert outlet orifice hose (11) from orifice union (12).** Hold retaining nut (13). Remove nut (14).







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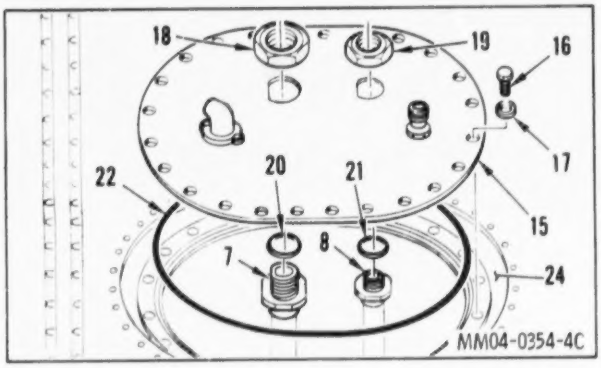
10-2-68. AFT FUEL CELL ACCESS PANEL AND ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-68

7. **Remove aft fuel cell N_2 inert breakaway valve** (10-2-101).

8. **Remove aft fuel cell N_2 inert outlet orifice** (10-2-102).

9. **Remove aft fuel cell access cover (15) from aft fuel cell.**



   a. Remove 24 bolts (16) and washers (17).

   b. Lift cover (15) from fuel cell (24).

   c. Hold connector J943 (7). Remove retaining nut (18). Use 1-1/8 and 1-7/16 open-end wrenches.

   d. Hold connector J1 (8). Remove retaining nut (19). Use 1-3/8 open-end wrench.

   e. Remove connectors J943 (7) and J1 (8), cover (15).

   f. Remove and discard two packings (20) and (21).

   g. Remove and discard cover packing (22).

B. CLEANING

1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

2. **Clean fillet seal residue from bottom of access panel and mounting area of transmission deck** (para 1-5-36).

3. **Clean packing residue from bottom of access cover and mounting area on fuel cell** (para 1-5-36).

C. INSPECTION

1. **Check access panel and access cover for nicks, dents, and cracks** (para 10-2-1).

2. **Check electrical connectors for damaged threads, damaged connections, and damaged wiring** (para 10-2-1).

GO TO NEXT PAGE

10-2-68. AFT FUEL CELL ACCESS PANEL AND ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-68

D. INSTALLATION

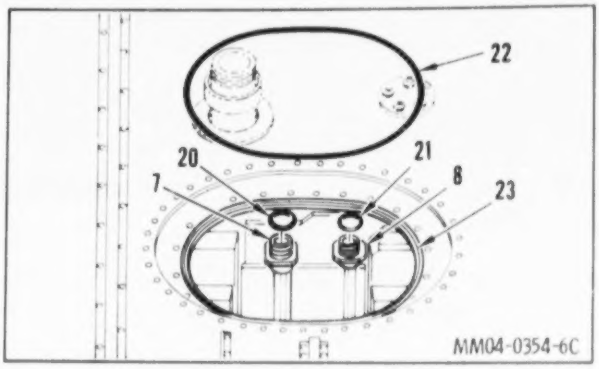
1. **Install fuel access cover packing (22) and connector packings (20) and (21).**

   a. Lubricate packing (22). Use petrolatum (E16).

   b. Install packing (22) in fuel cell mounting ring (23).

   c. Lubricate new packings (20) and (21). Use petrolatum (E16).

   d. Install packing (20) on connector J943 (7) and packing (21) on connector J1 (8).

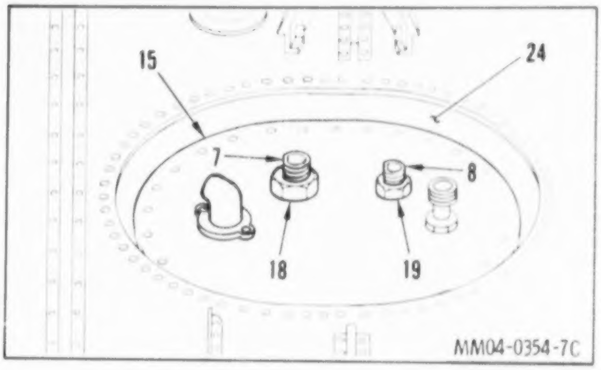


2. **Install access cover (15) on aft fuel cell (24).**

   a. Position cover (15) over fuel cell (24).

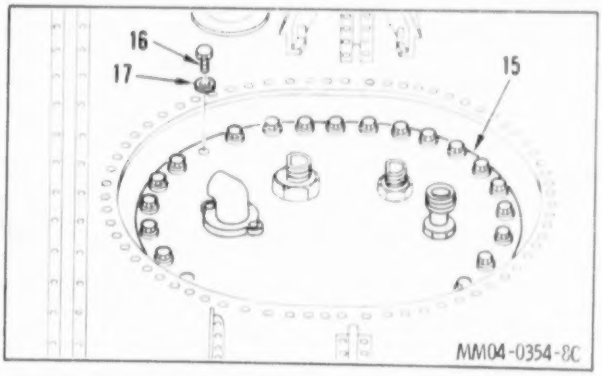
   b. Hold connector J943 (7). Install retaining nut (18). Use 1-1/8 and 1-7/16 open-end wrenches.

   c. Hold connector J1 (8). Install retaining nut (19). Use 1-3/8 open-end wrench.



   d. Aline cover (15) with mounting holes in fuel cell (24).

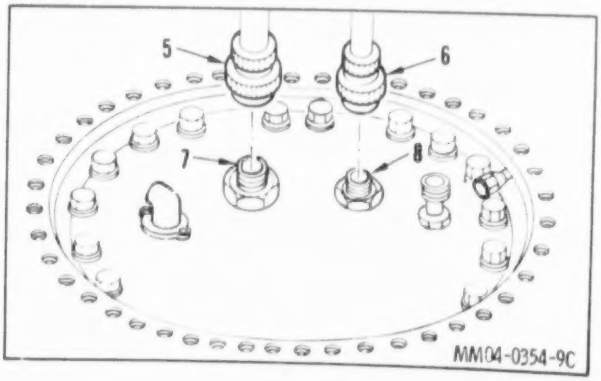
   e. Install 24 washers (17) and bolts (16).



3 **Install aft fuel cell N_2 inert breakaway valve** (10-2-101).

4. **Install aft fuel cell N_2 inert outlet orifice** (10-2-102).

5. **Attach electrical connectors P943 (5) and P264 (6) to pilot valve transmitter connector J943 (7) and fuel quantity transmitter connector J1 (8).**



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10-2-68. AFT FUEL CELL ACCESS PANEL AND ACCESS COVER REMOVAL/INSTALLATION (cont) 10-2-68

6. **Attach hose (11) to union (12).** Hold retaining nut (13). Torque nut (14) to **110 INCH-POUNDS.** Use 13/16, 3/8 drive crowfoot.

7. **Attach hose (9) to valve (10).** Torque hose (9) nut to **110 INCH-POUNDS.** Use 13/16, 3/8 drive crowfoot.

8. **Inspect (TI).**

9. **Install aft fuel cell fuel access panel (1).**

   a. Aline panel (1) with mounting holes in transmission deck.

   b. Lubricate 76 new packings with retainers (4). Use petrolatum (E16).

   c. Install 56 new packings with retainers (4) and screws (2).

   d. Install 20 bolts (3) and new packings with retainers (4).

10. **Apply adhesive as fillet seal to fuel access panel (1)** (TM 55-1500-204-25/1). Use adhesive (E65).

11. **Inspect (TI).**

12. **Install aft fuel cell upper vent tube** (para 10-2-18).

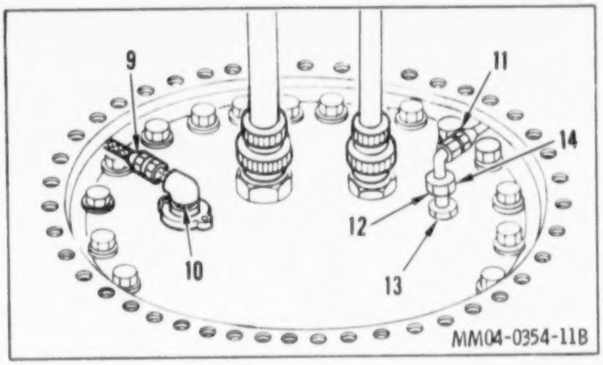
13. **Refuel aft fuel cell** (para 1-5-5).

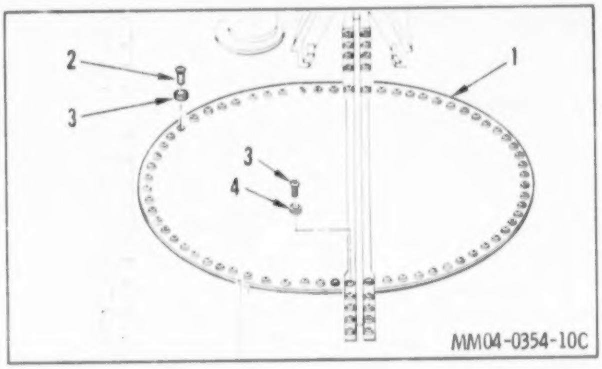
14. **Perform fuel quantity indication transfer operational check** (TM 55-1520-238-T).

15. **Install No. 3 drive shaft** (para 6-2-4).

16. **Install catwalk** (para 2-3-10).

END OF TASK





10-2-69. AFT FUEL CELL FORWARD ACCESS PANEL REMOVAL/INSTALLATION 10-2-69

This task covers: A. REMOVAL B. CLEANING C. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 9-1090-208-23

Equipment Conditions:

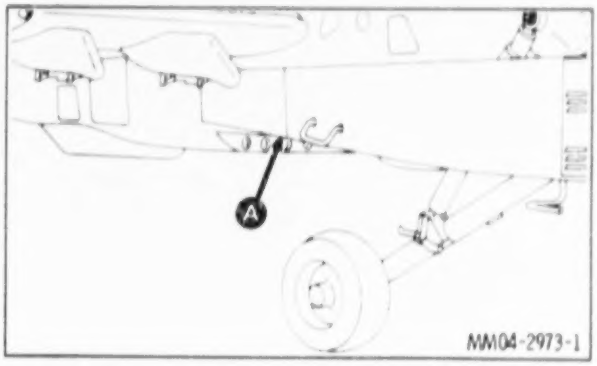
Ref	Condition
1-7-2	Helicopter safed
TM 9-1090-208-23	Ammunition storage magazine removed

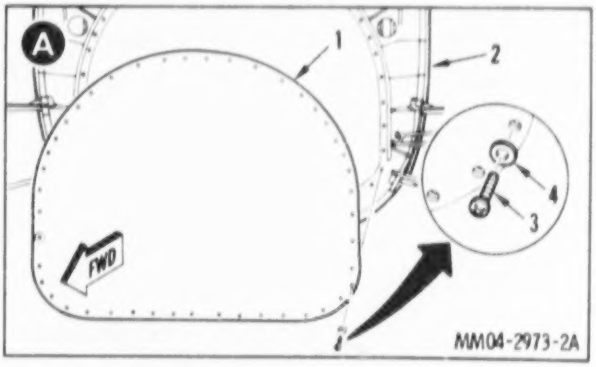
A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

Remove fuel cell access panel (1) from helicopter structure (2). Remove 46 screws (3) and washers (4).





B. CLEANING

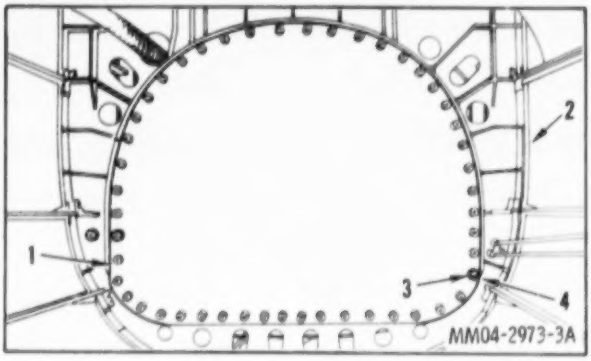
Wipe access panel and all surrounding surfaces with a clean rag.

GO TO NEXT PAGE

10-2-69. AFT FUEL CELL FORWARD ACCESS PANEL REMOVAL/INSTALLATION (cont) 10-2-69

C. INSTALLATION

1. **Install fuel access panel (1) on helicopter structure (2) from ammunition bay.** Install 46 screws (3) through washers (4).
2. **Inspect (TI).**
3. **Install ammunition storage magazine** (TM 9-1090-208-23).



END OF TASK

10-2-70. AFT FUEL CELL FILLER NECK REMOVAL/INSTALLATION 10-2-70

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. REPAIR E. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (9)
	Packing
(E16)	Petrolatum
(E28)	Sealing Kit
(E85)	Adhesive

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

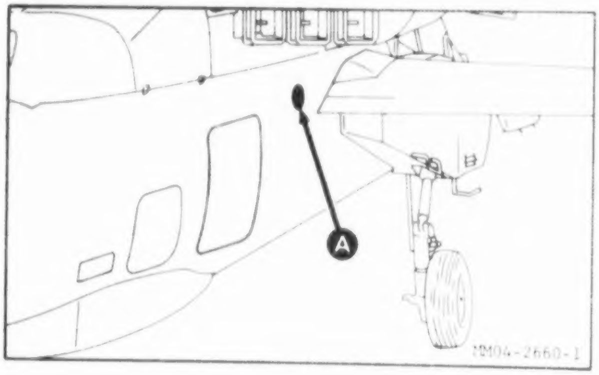
References:

TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
6-2-6	Forward hanger bearing and support removed
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell access panel and access cover removed

A. REMOVAL



WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

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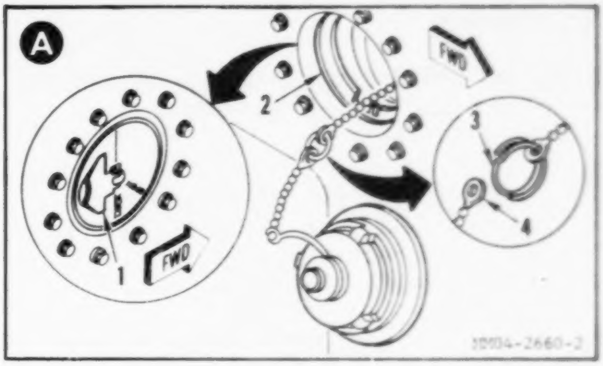
10-2-70. AFT FUEL CELL FILLER NECK REMOVAL/INSTALLATION (cont) 10-2-70

1. **Disconnect gravity filler cap (1) from filler neck (2).**

   a. Twist tab of cap (1) free of filler neck (2).

   b. Spread and turn spiral ring (3) until chain end (4) is free.

   c. Remove spiral ring (3) from chain end (4).



2. **Disconnect filler neck (2) from aft gravity filler port (5).** Remove 12 bolts (6) and washers (7).

3. **Remove access panel (8) from transmission deck (9).**

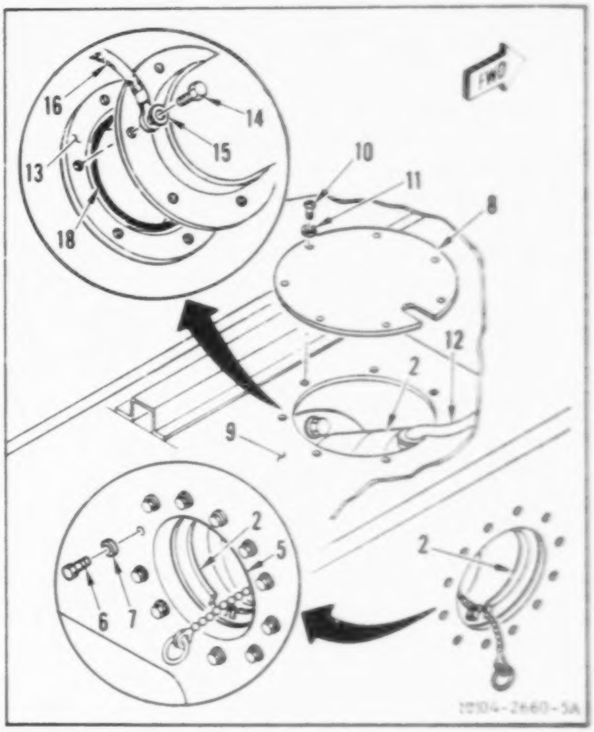
   a. Remove fillet seal from around panel (8).

   b. Remove nine screws (10) and packings with retainers (11). Discard packings.

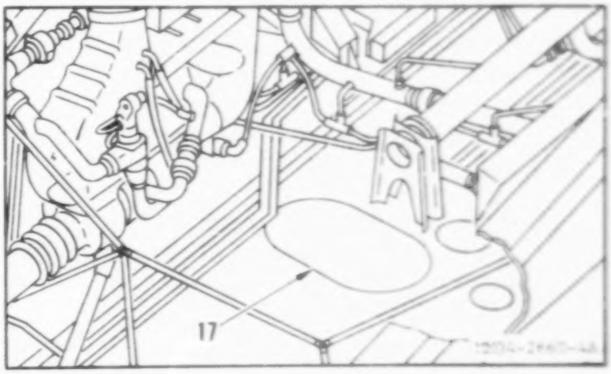
   c. Slide grommet and wire bundle (12) from panel.

   d. Remove panel (8).

4. **Disconnect filler neck (2) from aft fuel cell mounting pad (13).** Remove six bolts (14), washers (15), and ground strap (16).



5. **Remove filler neck (2) through aft fuel access panel (17).** Remove and discard packing (18).



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10-2-70. AFT FUEL CELL FILLER NECK REMOVAL/INSTALLATION (cont) 10-2-70

B. CLEANING

1. Clean old sealant from filler neck flange and mating surface (para 1-5-36).

2. Clean fillet seal residue from transmission deck panel and mounting area of transmission deck (para 1-5-36).

3. Wipe all removed and attaching parts with a clean rag.

C. INSPECTION

Check all removed and attaching parts for nicks, gouges, damaged helicoil inserts, and damaged or missing nut plates (para 10-2-1).

D. REPAIR

Repair filler neck by replacing nut plates (TM 55-1500-204-25/1).

E. INSTALLATION

1. Apply sealant to inside mating surface of filler neck (2) (TM 55-1500-204-25/1). Use sealant (E28).

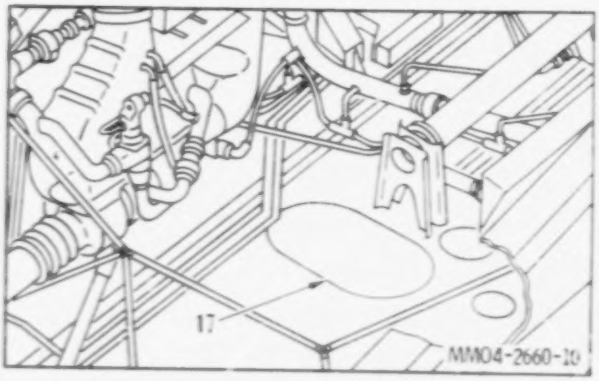
2. Install filler neck (2) through aft fuel access panel (17).

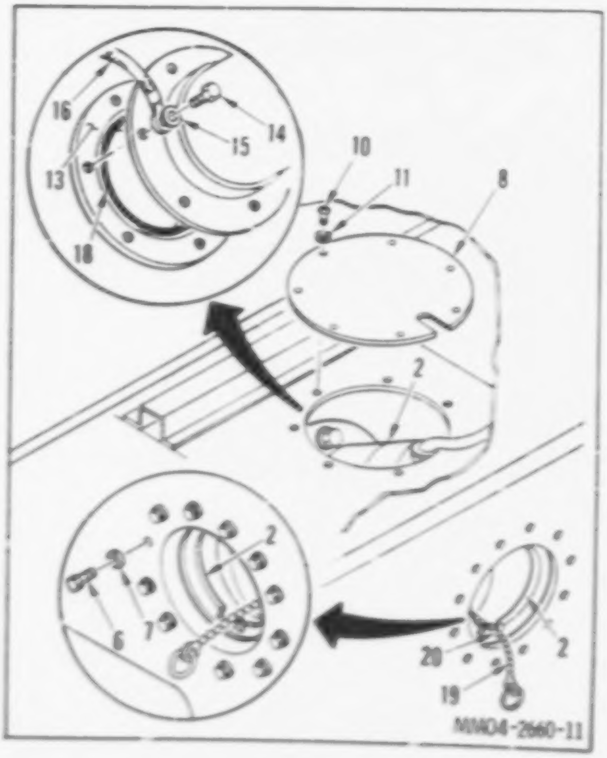
   a. Lubricate new packing (18). Use petrolatum (E16).

   b. Install packing (18) in mounting pad (13).

   c. Slide filler neck (2) through aft fuel access panel (17).

   d. Pull fuel/defuel check valve chain (19) through filler neck (2). Secure chain (19) in locking slot (20).





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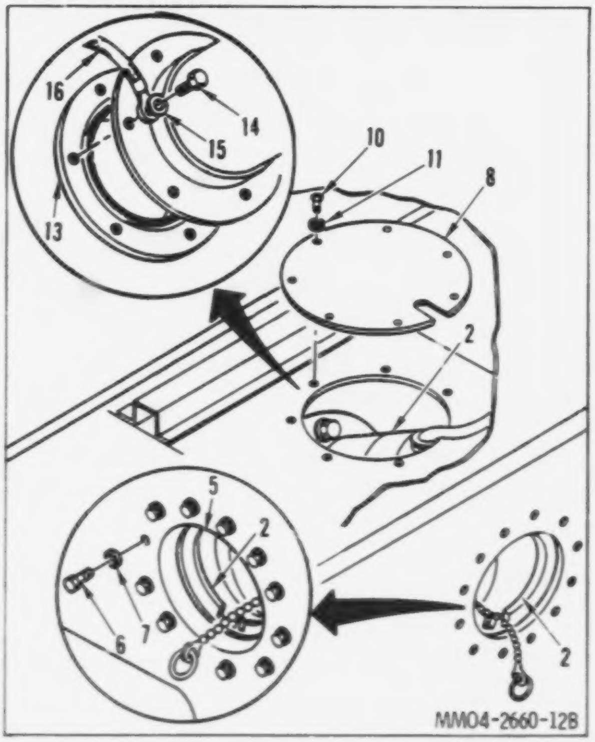
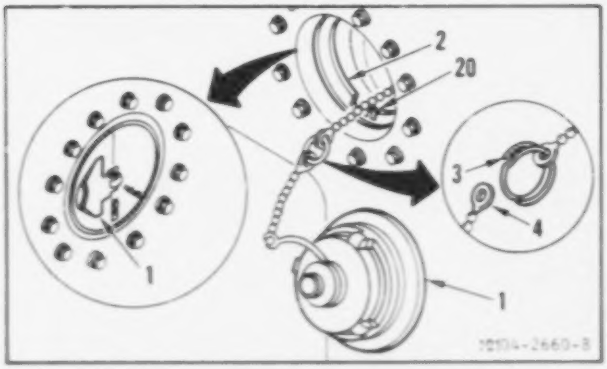
10-2-70. AFT FUEL CELL FILLER NECK REMOVAL/INSTALLATION (cont) 10-2-70

3. **Connect filler neck (2) to pad (13).**
   a. Position filler neck (2) on mounting pad (13).
   b. Install six washers (15), and bolts (14), and ground strap (16).
4. **Connect filler neck (2) to aft gravity filler port (5).** Install 12 washers (7) and bolts (6).



MM04-2660-12B

5. **Connect cap (1) to filler neck (2).**
   a. Spread spiral ring (3) and slide chain end (4) on ring (3).
   b. Turn ring (3) until secure in chain end (4).
   c. Remove chain end (4) from locking slot (20).
   d. Position cap (1) in filler neck (2). Turn tab of cap (1) to lock.
6. **Inspect (TI).**



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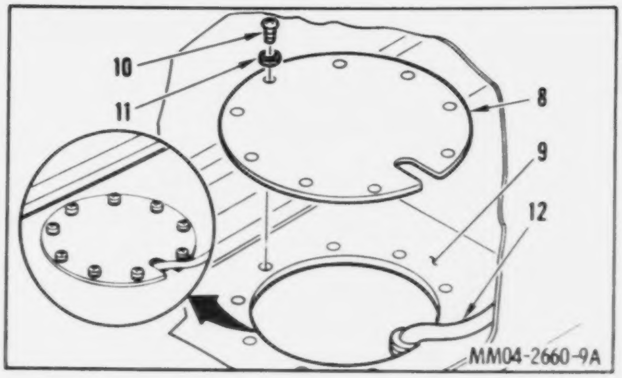
10-2-70. AFT FUEL CELL FILLER NECK REMOVAL/INSTALLATION (cont) 10-2-70

7. **Install access panel (8) on deck (9).**
   a. Slide grommet and wire bundle (12) into slot in panel (8).
   b. Position panel (8) over opening in deck (9).
   c. Lubricate nine new packings with retainer (11). Use petrolatum (E16).
   d. Install nine packings with retainers (11) and screws (10).



8. **Apply adhesive as fillet to seal access panel (8)** (TM 55-1500-204-25/1). Use adhesive (E85).
9. **Install aft fuel access panel and access cover** (para 10-2-68).
10. **Install forward hanger bearing and support** (para 6-2-6).

END OF TASK

10-2-71. AFT FUEL CELL FUEL/DEFUEL CHECK VALVE REMOVAL/INSTALLATION 10-2-71

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

Packing
(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

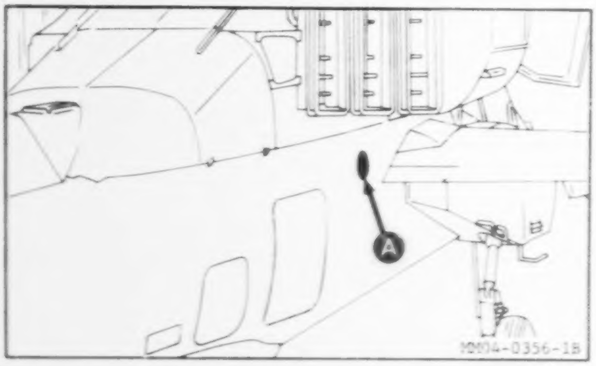
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell fuel access panel and access cover removed



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10-2-71. AFT FUEL CELL FUEL/DEFUEL CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-71

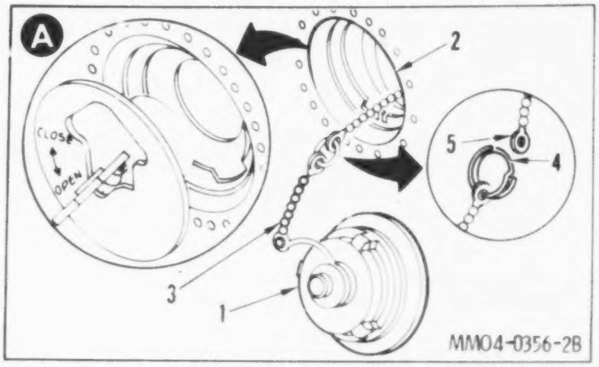
A. REMOVAL

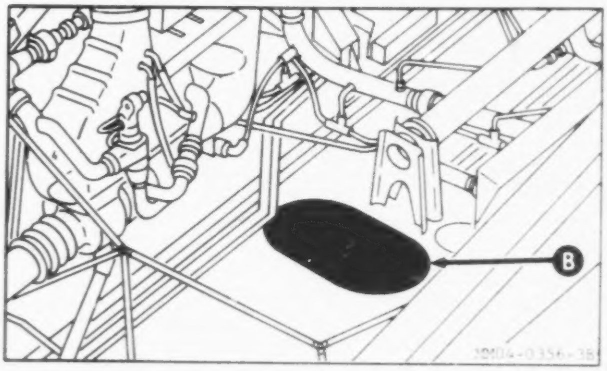
WARNING

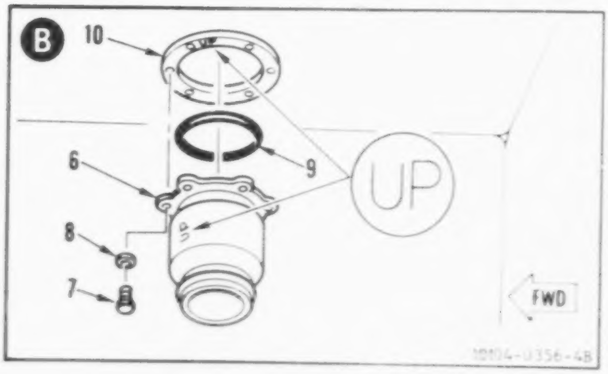
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.







1. **Remove gravity filler cap (1) from gravity filler port (2).** Turn and pull cap (1) out of fill port (2).
2. **Disconnect filler cap chain (3).** Spread and turn spiral ring (4) until chain end (5) is free.
3. **Remove fuel/defuel check valve (6) from aft fuel cell.**
    a. Remove six bolts (7) and washers (8).
    b. Remove and discard packing (9) from mounting pad (10).
    c. Remove valve (6) from fuel cell.

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

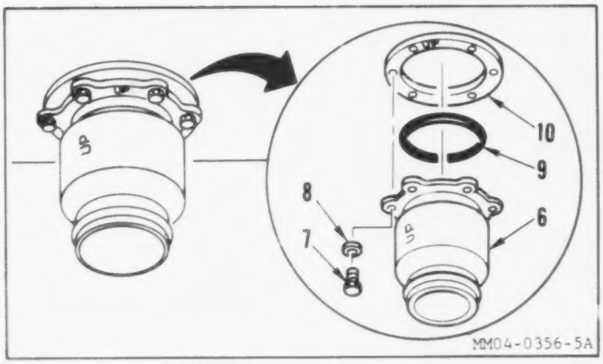
GO TO NEXT PAGE

10-2-71. AFT FUEL CELL FUEL/DEFUEL CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-71

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

D. INSTALLATION



1. **Install check valve (6).**

   a. Lubricate new packing (9). Use petrolatum (E16).

   b. Install packing (9) on mounting pad (10).

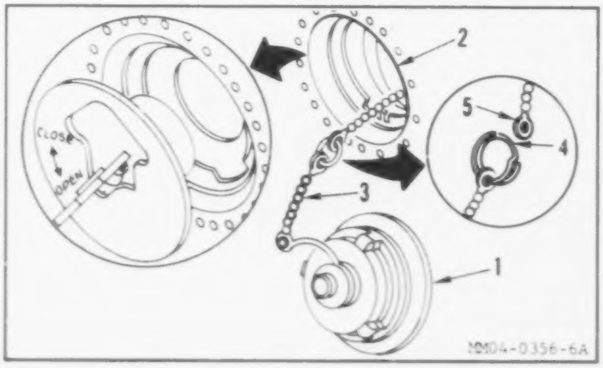
   NOTE

   Valve side marked UP must be installed up.

   c. Aline check valve (6) with mounting holes of mounting pad (10).

   d. Install six washers (8) and bolts (7).

2. **Inspect (TI).**



3. **Connect filler cap chain (3).**

   a. Spread and insert spiral ring (4) through chain end (5).

   b. Turn until ring (4) is in chain end (5).

4. **Install cap (1) in port (2).**

   a. Push cap (1) into port (2).

   b. Turn cap (1) to CLOSE.

5. **Install aft fuel cell fuel access panel and access cover** (para 10-2-66).

6. **Perform gravity refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-72. FUEL BOOST PUMP AND DRAIN TUBE REMOVAL/INSTALLATION 10-2-72

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133

Materials/Parts:

	Packing (4)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 11-1520-238-23

Equipment Conditions:

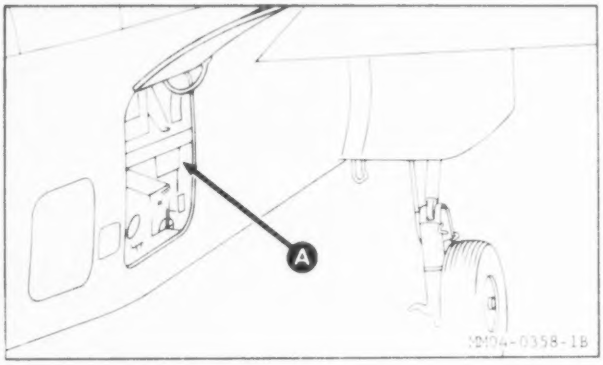
Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access door R295 opened
10-2-2	Fuel system safety precautios observed
TM 11-1520-238-23	Crypto set removed. Instrumentation mounting brackets removed (as required)

GO TO NEXT PAGE

10-2-72. FUEL BOOST PUMP AND DRAIN TUBE REMOVAL/INSTALLATION (cont) 10-2-72

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.



2. Open FUEL BST circuit breaker on pilot center circuit breaker panel.

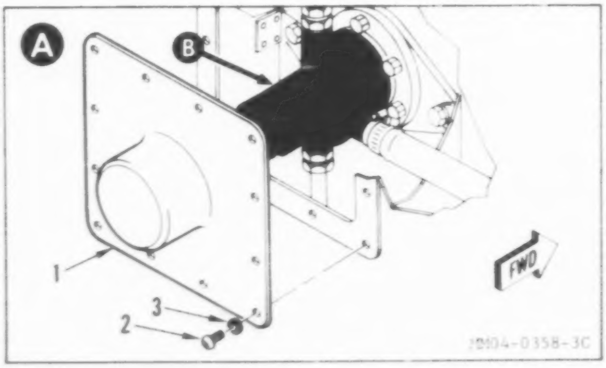
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

3. Remove access cover (1). Remove 12 screws (2) and washers (3).



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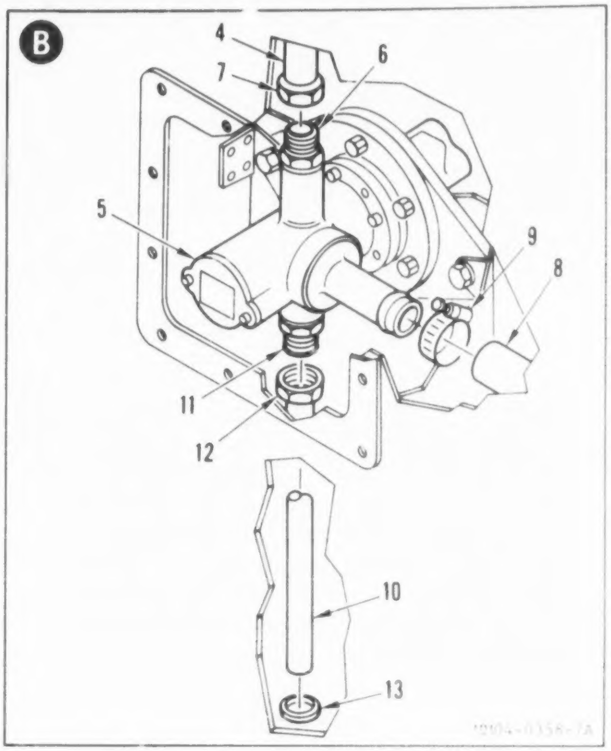
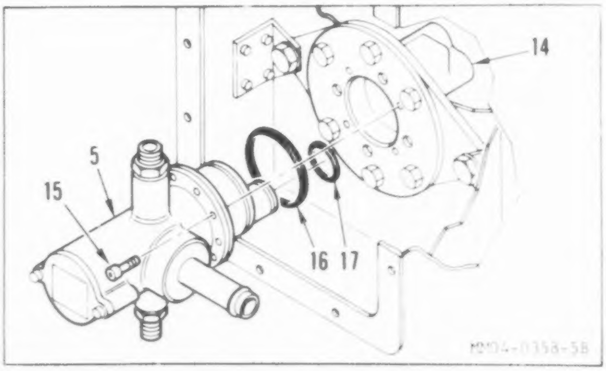
10-2-72. FUEL BOOST PUMP AND DRAIN TUBE REMOVAL/INSTALLATION (cont) 10-2-72

4. **Remove air inlet hose (4) from fuel boost pump (5).**
   a. Hold union (6). Use 1-inch open-end wrench.
   b. Disconnect hose nut (7) from union (6).
5. **Remove boost pump air outlet hose (8) from pump (5).**
   a. Loosen hose clamp (9).
   b. Slide clamp (9) back on hose (8).
   c. Pull hose (8) clear of pump (5).
6. **Disconnect boost pump fuel drain tube (10) from pump (5).**
   a. Hold union (11).
   b. Disconnect tube nut (12) from union (11).
   c. Pull tube (10) from union (11) and through grommet (13).
7. **Remove pump (5) from canister (14).**
   a. Remove four mounting screws (15).
   b. Pull pump (5) from canister (14).
   c. Remove and discard two packings (16) and (17).





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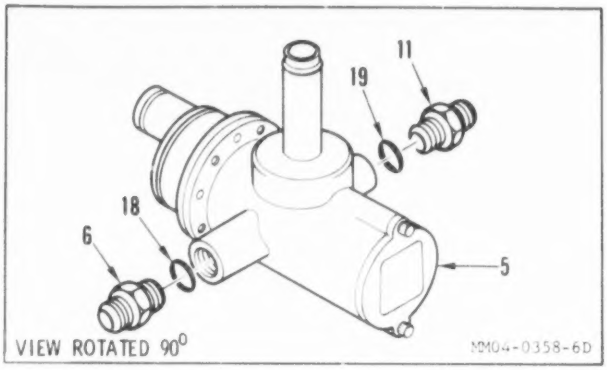
8. **For fuel boost pump (5) replacement, remove hardware.**

   a. Remove union (6) and packing (18). Discard packing (18).

   b. Remove union (11) and packing (19). Discard packing (19).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for nicks, dents, cracks, or damaged threads (para 10-2-1).

D. **INSTALLATION**

1. **If needed, install hardware on fuel pump (5).**

   a. Lubricate new packings (18) and (19). Use petrolatum (E16).

   b. Install packing (18) on union (6).

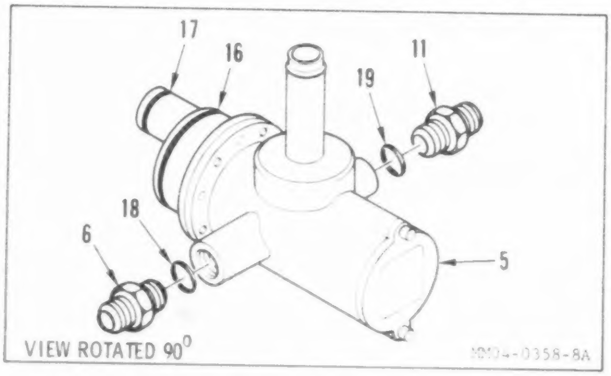
   c. Lubricate threads of union (6). Use petrolatum (E16).

   d. Install union (6) on pump (5).

   e. Install packing (19) on union (11).

   f. Lubricate threads of union (11). Use petrolatum (E16).

   g. Install union (11) on pump (5).



2. **Install packings (16) and (17) on pump (5).**

   a. Lubricate new packings (16) and (17). Use petrolatum (E16).

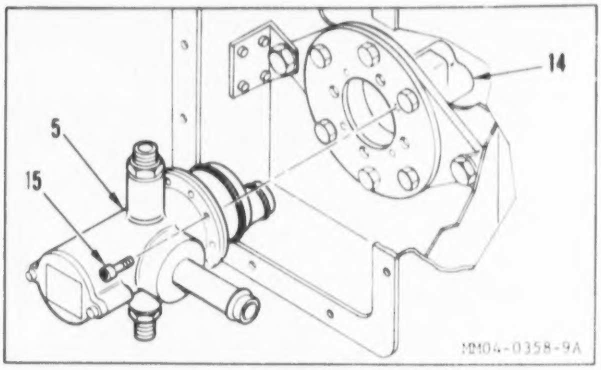
   b. Install packings (16) and (17) on pump (5).

GO TO NEXT PAGE

10-2-72. FUEL BOOST PUMP AND DRAIN TUBE REMOVAL/INSTALLATION (cont) 10-2-72

3. **Push tube (10) into grommet (13).**

4. **Install pump (5) in canister (14).** Install four screws (15).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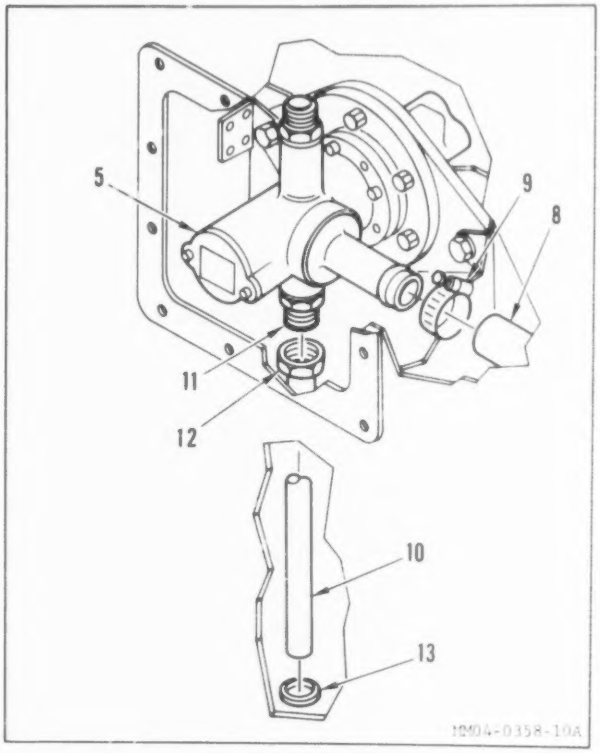
5. **Install tube (10).**
   - a. Lubricate threads of union (11). Use petrolatum (E16).
   - b. Hold union (11).
   - c. Connect tube nut (12) to union (11).

6. **Install hose (8).**
   - a. Slide hose (8) and clamp (9) on pump (5).
   - b. Tighten clamp (9).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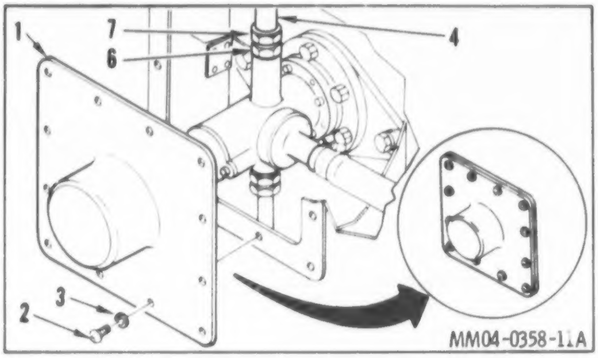
10-2-72. FUEL BOOST PUMP AND DRAIN TUBE REMOVAL/INSTALLATION (cont) 10-2-72



7. **Install hose (4).**

   a. Lubricate threads of union (6). Use petrolatum (E16).

   b. Hold union (6). Use 1-inch open-end wrench.

   c. Connect hose nut (7) to union (6).

8. **Inspect (TI).**

9. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

10. **Install access cover (1).** Install 12 washers (3) and screws (2).

11. **Install instrumentation mounting brackets and crypto set** (TM 11-1520-238-23).

12. **Secure access door L295** (para 2-2-2).

END OF TASK

10-2-73. FUEL BOOST PUMP INLET HOSE REPLACEMENT 10-2-73

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

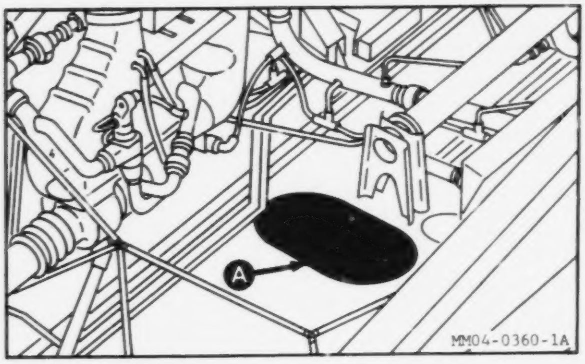
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell fuel access panel and access cover removed



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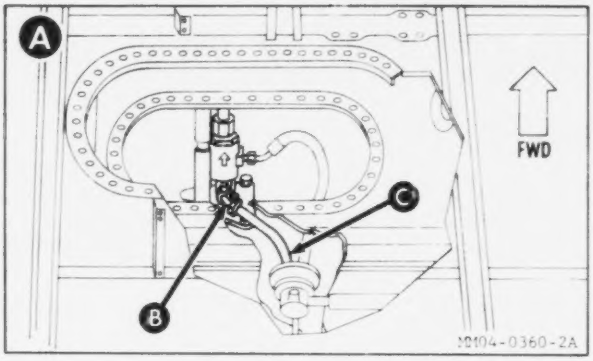
10-2-73. FUEL BOOST PUMP INLET HOSE REPLACEMENT (cont) 10-2-73

A. REMOVAL



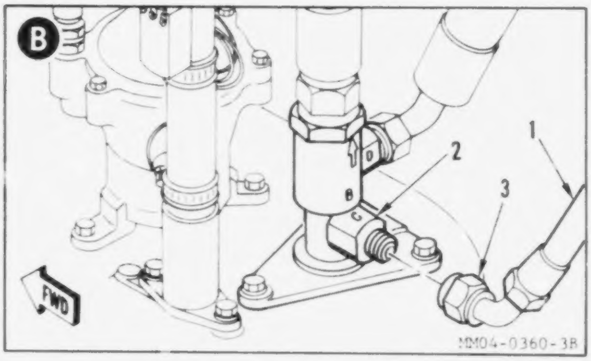
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

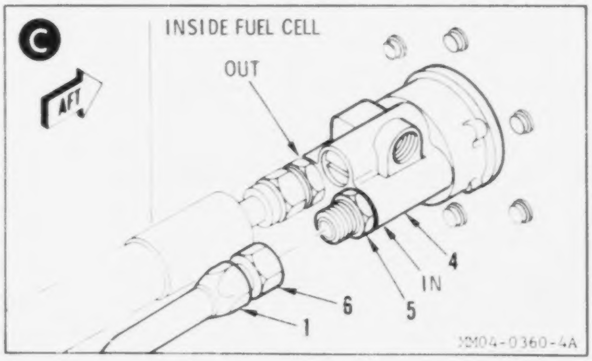
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Disconnect fuel boost pump inlet hose (1) from four-way check valve (2).**
   a. Hold check valve (2).
   b. Disconnect hose nut (3).



2. **Disconnect upper end of hose (1) from boost pump (4).**
   a. Hold union (5). Use 1-inch open-end wrench.
   b. Disconnect hose nut (6).
   c. Remove hose (1).



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10-2-73. FUEL BOOST PUMP INLET HOSE REPLACEMENT (cont) 10-2-73

B. CLEANING

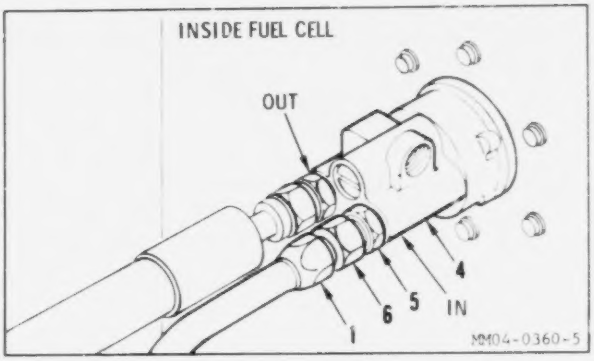
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

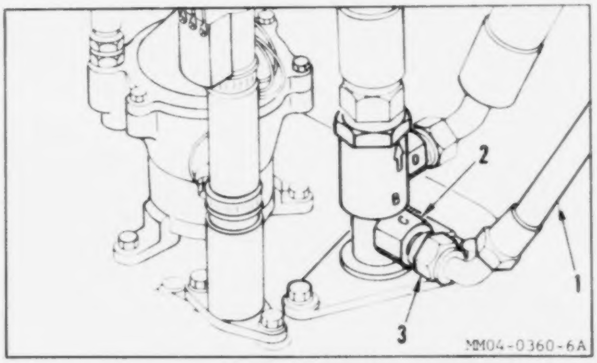
Check hose, valve, and pump for cracks, nicks, cuts, and damaged threads (para 10-2-1).

D. INSTALLATION

1. Connect hose (1) to pump (4).
    a. Lubricate threads of union (5). Use petrolatum (E16).
    b. Hold union (5). Use 1-inch open-end wrench.
    c. Connect hose nut (6) to union (5).



2. Connect hose (1) to valve (2).
    a. Lubricate threads of valve (2). Use petrolatum (E16).
    b. Hold valve (2).
    c. Connect hose nut (3) to valve (2).



3. Inspect (TI).
4. Install aft fuel cell fuel access panel and access cover (para 10-2-68).
5. Perform fuel system priming operation (para 1-5-12).
6. Perform fuel crossfeed/boost system operational check (TM 55-1520-238-T).

END OF TASK

10-2-74. FUEL BOOST PUMP CANISTER REMOVAL/INSTALLATION 10-2-74

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133

Materials/Parts:

	Packing (3)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

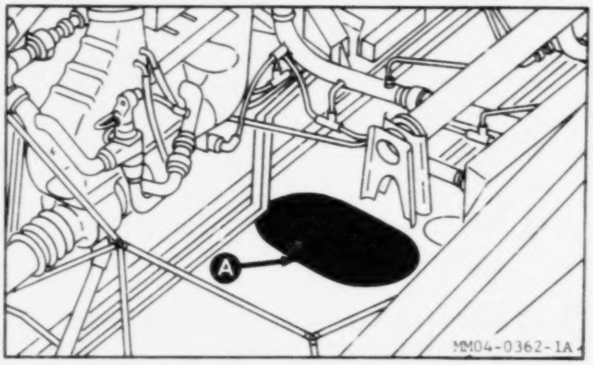
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell access panel and access cover removed
10-2-72	Fuel boost pump and drain tube removed



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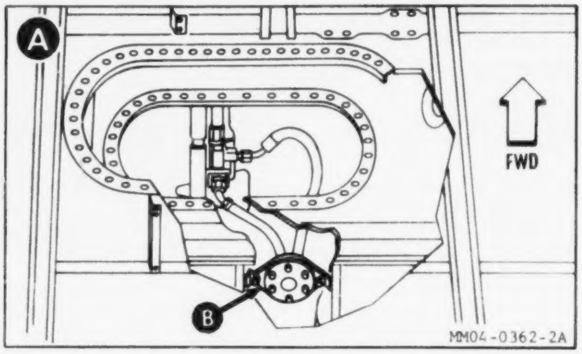
10-2-74. FUEL BOOST PUMP CANISTER REMOVAL/INSTALLATION (cont) 10-2-74

A. REMOVAL



WARNING

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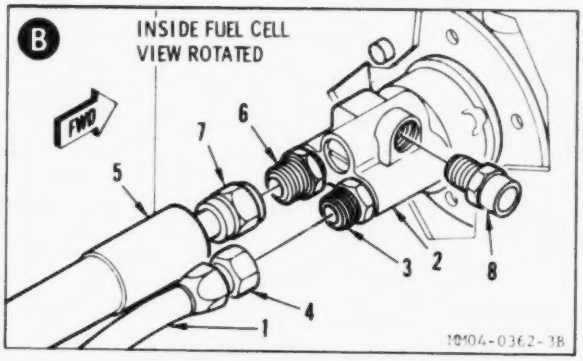
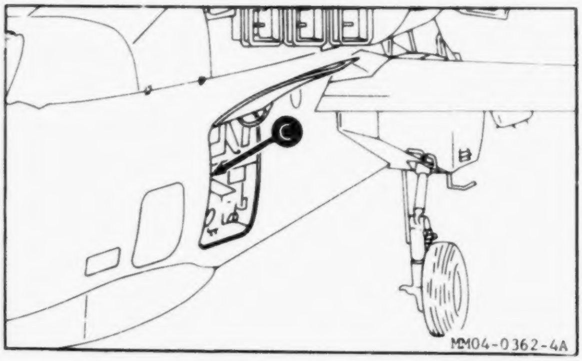
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect boost pump inlet hose (1) from fuel boost pump canister (2).**
   a. Hold union (3). Use 1-inch open-end wrench.
   b. Disconnect hose nut (4) from union (3).
2. **Disconnect boost pump outlet hose (5) from canister (2).**
   a. Hold union (6). Use 1-inch open-end wrench.
   b. Disconnect hose nut (7) from union (6).
3. **Remove thermal relief valve (8) from canister (2).**



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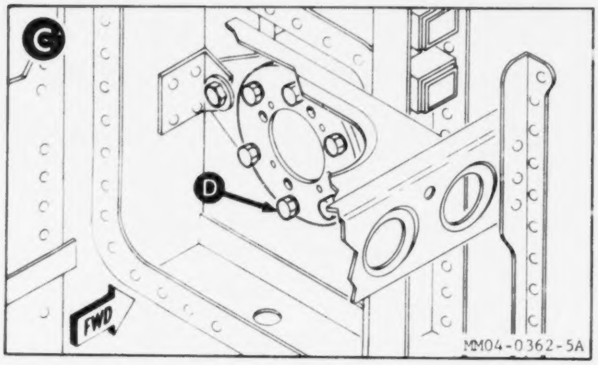
10-2-74. FUEL BOOST PUMP CANISTER REMOVAL/INSTALLATION (cont) 10-2-74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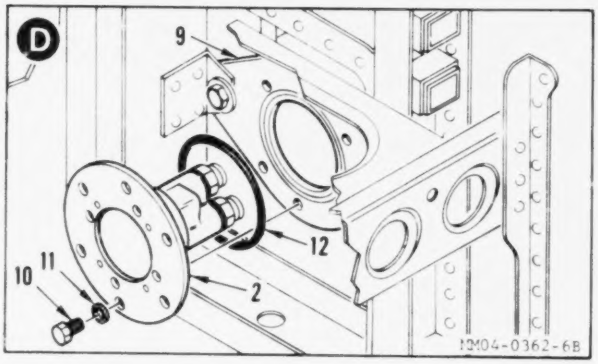
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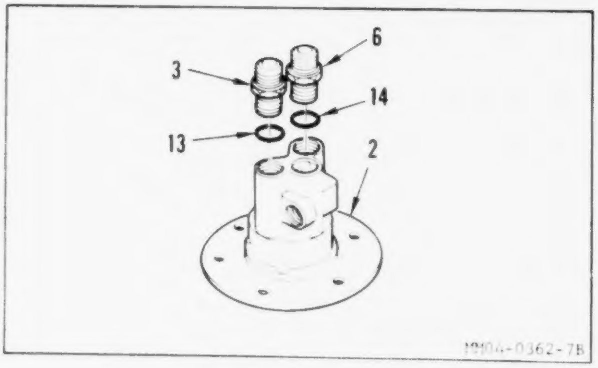
4. **Remove canister (2) from fuel cell (9).**

   a. Remove six bolts (10) and washers (11).

   b. Remove and discard packing (12).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5. **Remove two unions (3) and (6) from canister (2).** Use 1-inch open-end wrench.

   a. Remove and discard packing (13) from union (3).

   b. Remove and discard packing (14) from union (6).

B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check hoses, canister, and unions for cracks, nicks, cuts, and damaged threads (para 10-2-1).

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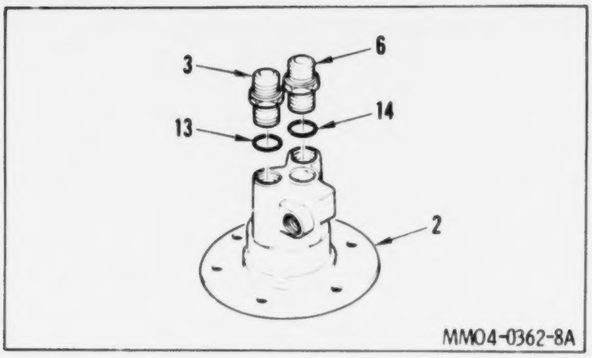
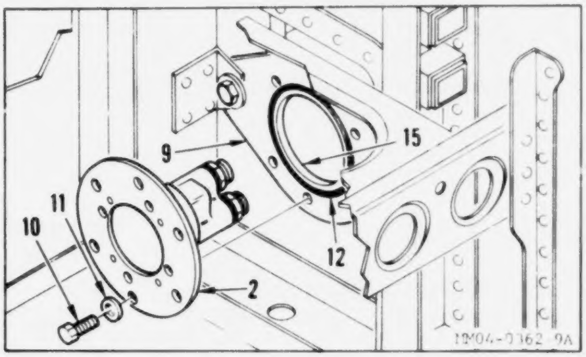
10-2-74. FUEL BOOST PUMP CANISTER REMOVAL/INSTALLATION (cont) 10-2-74

D. INSTALLATION



1. **Install canister unions (3) and (6).**
   - a. Lubricate new packings (13) and (14). Use petrolatum (E16).
   - b. Install packings (13) and (14) on unions (3) and (6).
   - c. Lubricate threads of unions (3) and (6). Use petrolatum (E16).
   - d. Install unions (3) and (6) in canister (2). Use 1-inch open-end wrench.



2. **Install canister (2) in fuel cell (9).**
   - a. Lubricate new packing (12). Use petrolatum (E16).
   - b. Install packing (12) on fuel cell mounting pad (15).
   - c. Aline canister (2) with mounting pad (15).
   - d. Install six washers (11) and bolts (10).

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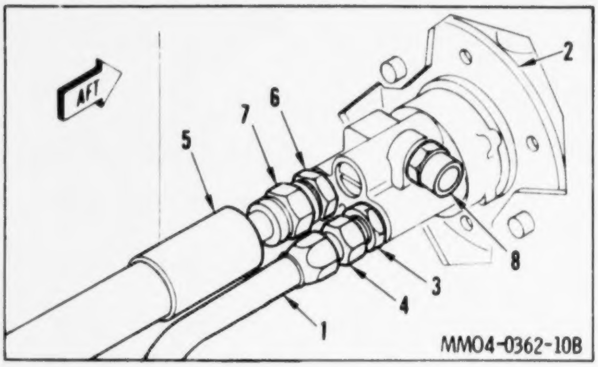
10-2-74. FUEL BOOST PUM CANISTER REMOVAL/INSTALLATION (cont) 10-2-74



3. **Install valve (8) on canister (2).**
4. **Connect outlet hose (5) to union (6).**
   a. Lubricate threads of union (6). Use petrolatum (E16).
   b. Hold union (6). Use 1-inch open-end wrench.
   c. Install hose nut (7) on union (6).
5. **Connect inlet hose (1) to union (3).**
   a. Lubricate threads of union (3). Use petrolatum (E16).
   b. Hold union (3). Use 1-inch open-end wrench.
   c. Install hose nut (4) on union (3).
6. **Install fuel boost pump** (para 10-2-72).
7. **Inspect (TI).**
8. **Install aft fuel cell access panel and access cover** (para 10-2-68).
9. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-75. AFT FUEL CELL FOUR-WAY CHECK VALVE REMOVAL/INSTALLATION 10-2-75

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-1/16 & 1-1/4 Open-end	5120-00-187-7134
Wrench, 1-1/2 & 1-5/8 Open-end	5120-00-184-8439

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-free

Personnel Required:

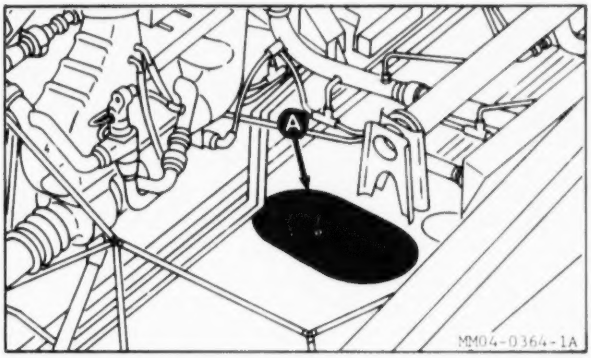
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell access panel and access cover removed



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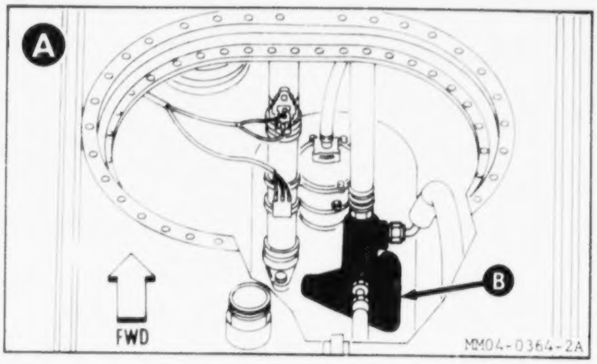
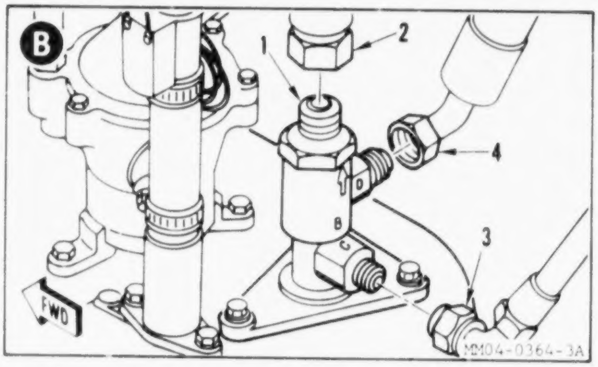
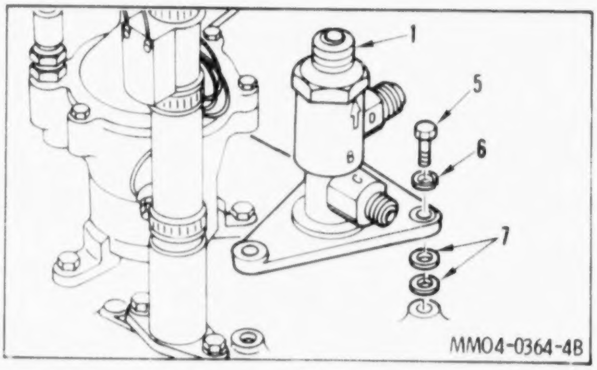
10-2-75. AFT FUEL CELL FOUR-WAY CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-75

A. REMOVAL







WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove aft four-way check valve (1) from aft fuel cell.**
   a. Hold valve (1). Use 1-1/2 open-end wrench.
   b. Disconnect fuel supply hose nut (2) from valve (1). Use 1-1/4 open-end wrench.
   c. Disconnect fuel inlet hose nut (3) from valve (1).
   d. Disconnect fuel outlet hose nut (4) from valve (1).
   e. Remove three bolts (5), three lock washers (6), valve (1), and six washers (7).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

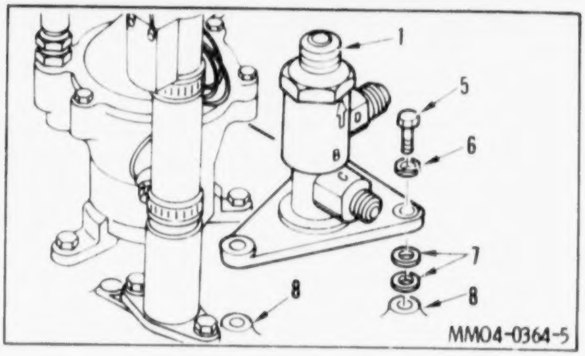
C. INSPECTION

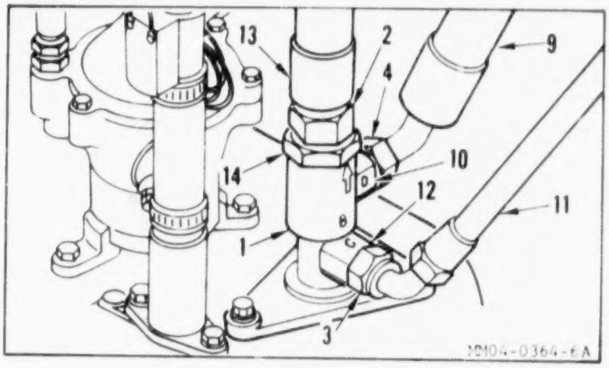
Check hose nuts for cracks, nicks, and damaged threads (para 10-2-1).

GO TO NEXT PAGE

10-2-75. AFT FUEL CELL FOUR-WAY CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-75

D. INSTALLATION





1. **Install check valve (1) in aft fuel cell.**

   a. Place six washers (7) on three mounting pads (8).

   b. Aline valve (1) with mounting pads (8).

   c. Install three lock washers (6) and three bolts (5).

2. **Install outlet hose (9) on valve (1).**

   a. Lubricate threads of fitting (10). Use petrolatum (E16).

   b. Connect hose nut (4) to fitting (10) at port D.

3. **Install inlet hose (11) on valve (1).**

   a. Lubricate threads of fitting (12). Use petrolatum (E16).

   b. Connect hose nut (3) to fitting (12) at port C.

4. **Install fuel supply hose (13) on valve (1).**

   a. Lubricate threads of fitting (14). Use petrolatum (E16).

   b. Connect hose nut (2) to fitting (14) at port B. Use 1-1/4 open-end wrench.

5. **Inspect (TI).**

6. **Install aft fuel cell access panel and access cover** (para 10-2-68).

7. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-76. AFT FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION 10-2-76

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

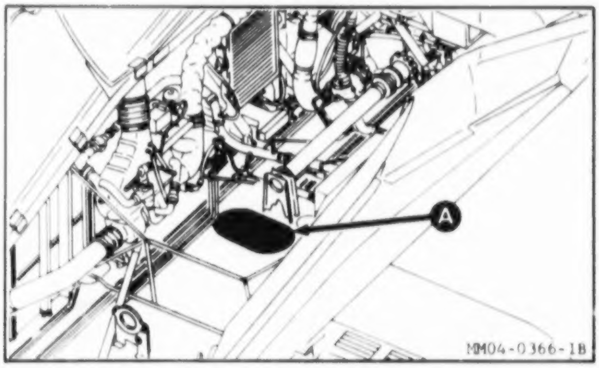
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell fuel access panel and fuel cell access cover removed



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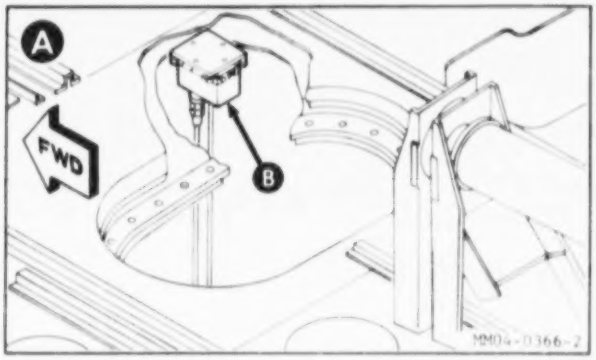
10-2-76. AFT FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-76

A. REMOVAL

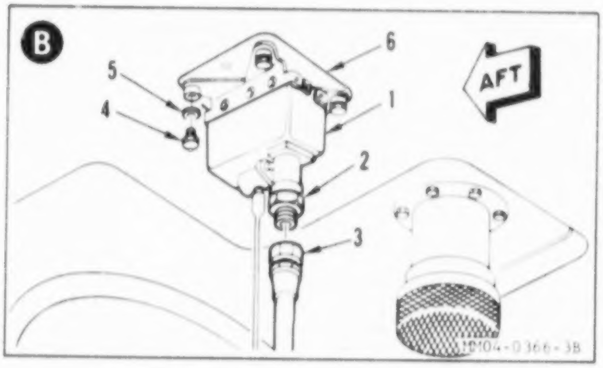


WARNING

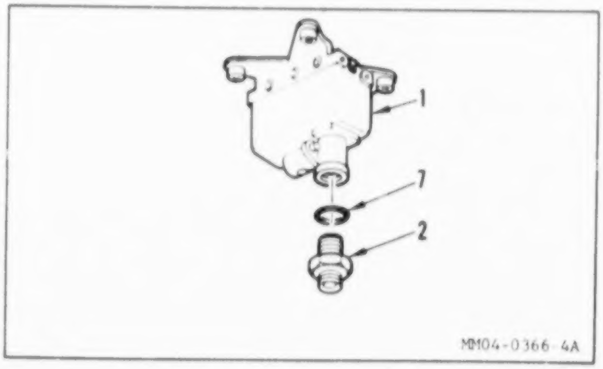
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Remove aft fuel cell fuel level control pilot valve (1).**
   a. Hold union (2).
   b. Disconnect nut (3).
   c. Remove four bolts (4) and washers (5) from valve (1) and mounting pad (6).
2. **Remove valve (1) from fuel cell.**
3. **Remove union (2) from valve (1).**
   a. Remove union (2).
   b. Remove and discard packing (7).



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10-2-76. AFT FUEL CELL FUEL LEVEL CONTROL PILOT VALVE REMOVAL/INSTALLATION (cont) 10-2-76

B. CLEANING

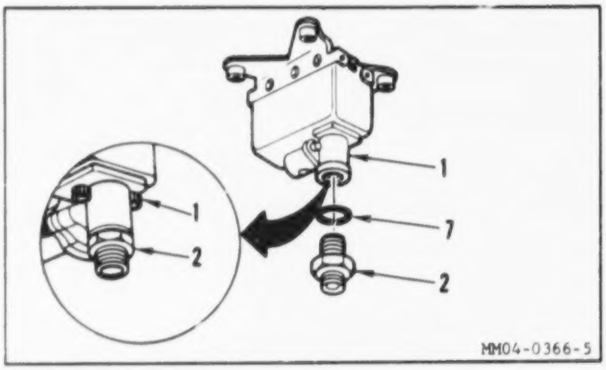
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

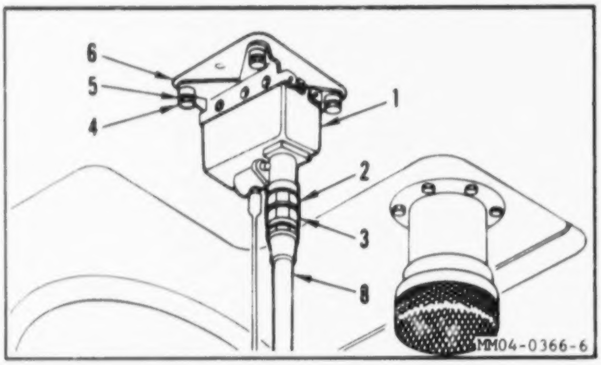
Check all removed and attaching parts for cracks, nicks, gouges, and dents (para 10-2-1).

D. INSTALLATION

1. **Install union (2) in valve (1).**
   - a. Lubricate new packing (7) and threads of union (2). Use petrolatum (E16).
   - b. Install packing (7) on union (2).
   - c. Install union (2) in valve (1).



2. **Install valve (1) on mounting pad (6).** Install four washers (5) and bolts (4).
3. **Connect pilot valve hose (8) to union (2).**
   - a. Lubricate threads on union (2). Use petrolatum (E16).
   - b. Hold union (2).
   - c. Install nut (3) on union (2).



4. **Inspect (TI).**
5. **Install aft fuel cell fuel access panel and fuel cell access cover** (para 10-2-68).
6. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-77. AFT FUEL CELL PILOT VALVE HOSE REPLACEMENT 10-2-77

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

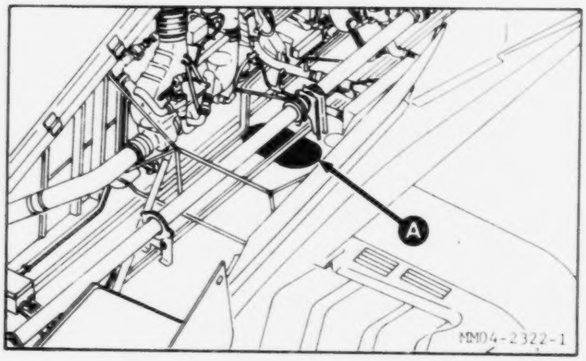
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell access panel and access cover removed



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10-2-77. AFT FUEL CELL PILOT VALVE HOSE REPLACEMENT (cont) 10-2-77

A. REMOVAL

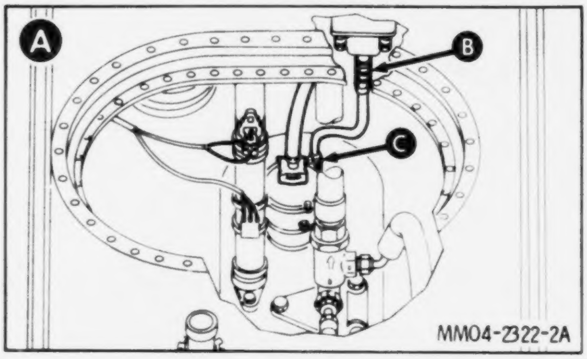
WARNING

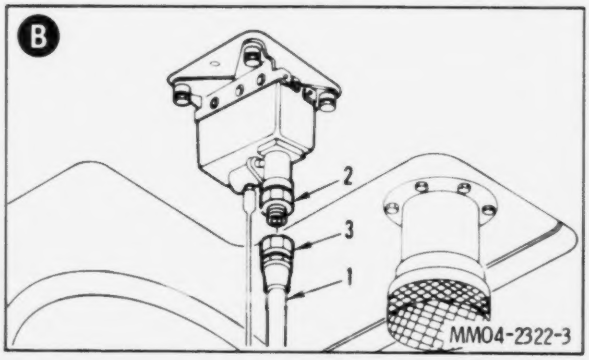
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

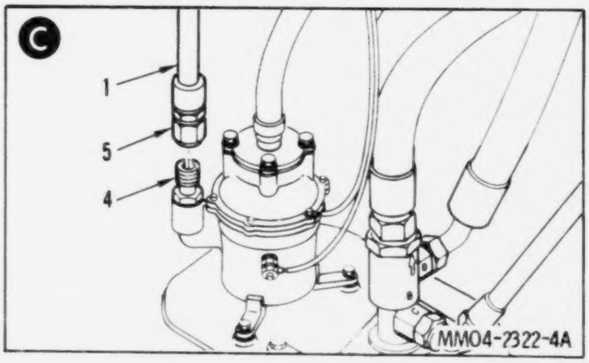
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove aft pilot valve hose (1).**
   a. Hold pilot valve union (2).
   b. Remove hose nut (3) from union (2).
   c. Hold shutoff valve union (4).
   d. Remove hose nut (5) from union (4).







B. CLEANING

Wipe pilot valve union and shutoff valve union with a clean lint-free cloth (E32).

C. INSPECTION

Check pilot valve union and shutoff valve union for thread damage, cracks, and rounded wrench flats (para 10-2-1).

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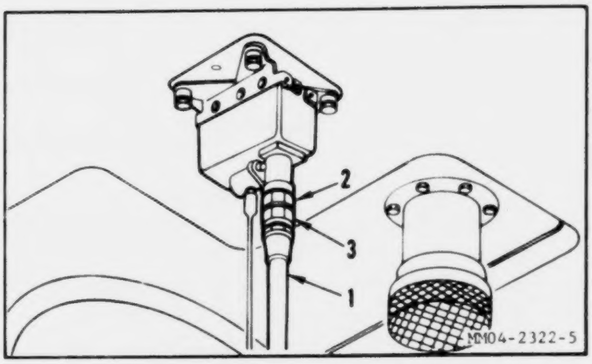
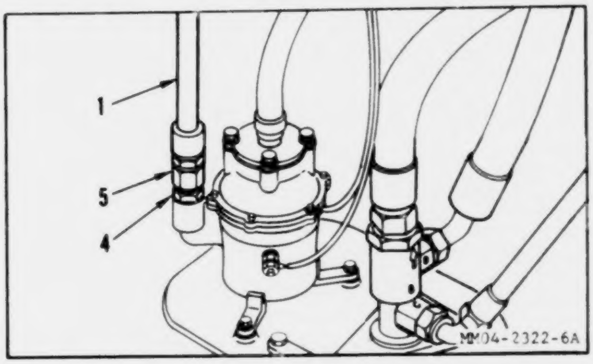
10-2-77. AFT FUEL CELL PILOT VALVE HOSE REPLACEMENT (cont) 10-2-77

D. INSTALLATION

1. **Install aft pilot valve hose (1).**
   a. Lubricate union (2). Use petrolatum (E16).
   b. Hold union (2).
   c. Install nut (3) on union (2).
   d. Lubricate union (4). Use petrolatum (E16).
   e. Hold union (4).
   f. Install nut (5) on union (4).
2. **Inspect (TI).**
3. **Install aft fuel cell access panel and access cover** (para 10-2-66).
4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).





END OF TASK

10-2-78. AFT FUEL CELL FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION 10-2-78

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. ADJUSTMENT
E. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

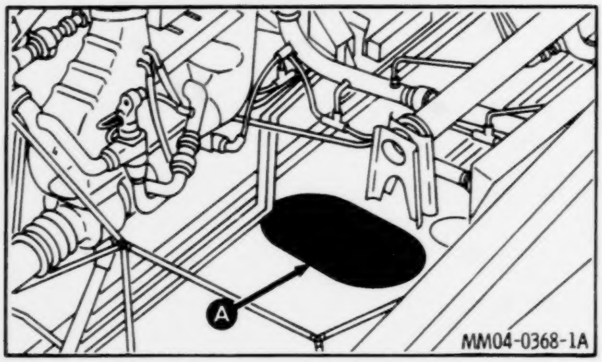
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell access panel and fuel cell access cover removed



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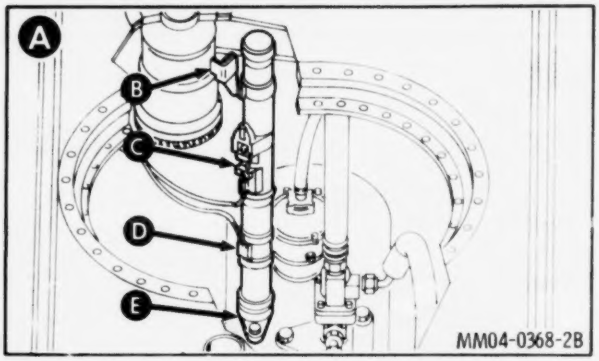
10-2-78. AFT FUEL CELL FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-78

A. REMOVAL



WARNING

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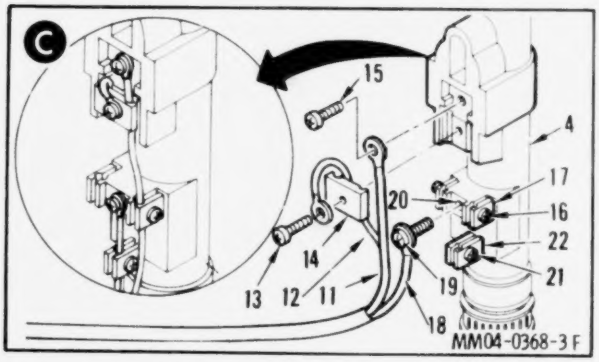
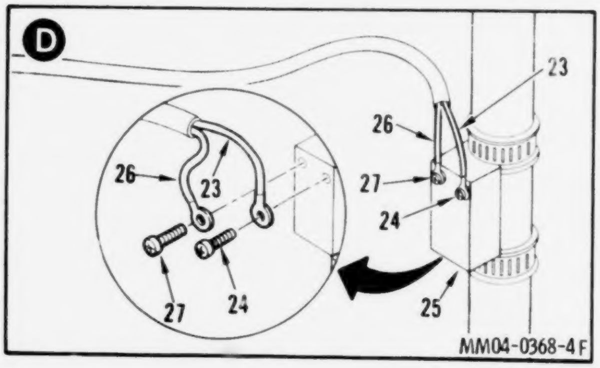
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Disconnect white Hi Z lead (11) and black lead (12) from fuel quantity transmitter (4).**
    a. Remove screw (13), black lead (12), and clamp (14) from transmitter (4).
    b. Remove screw (15) and white lead (11) from transmitter (4).
    c. Loosen screw (16). Remove white lead (11) from upper retainer (17).



2. **Disconnect red Lo Z lead (18 fuel quantity transmitter (4).**
    a. Remove screw (19) and red lead (18) from Lo Z terminal (20).
    b. Loosen screw (21). Remove red lead (18) from retainer (22).
3. **Disconnect orange lead (23) and screw (24) from low level sensor (25).**
4. **Disconnect yellow lead GND (26) and screw (27) from low level sensor (25).**



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10-2-78. AFT FUEL CELL FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-78

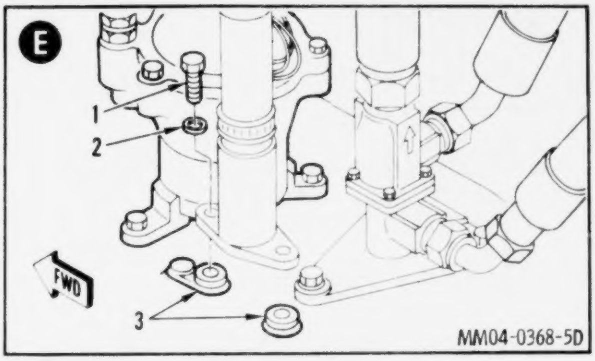
5. **Remove two bolts (1) and washers (2) from fuel cell mounting flange (3).**

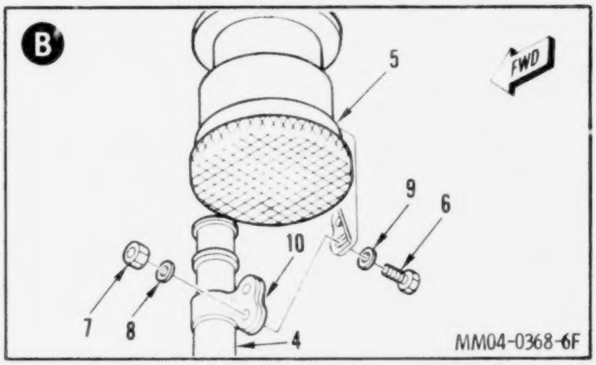
6. **Remove fuel quantity transmitter (4) from pressure relief valve (5).**

   a. Hold two upper mounting bolts (6).

   b. Remove two nuts (7) and washers (8).

   c. Remove two bolts (6) and washers (9) from mounting bracket (10).





B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks (para 10-2-1).

D. ADJUSTMENT

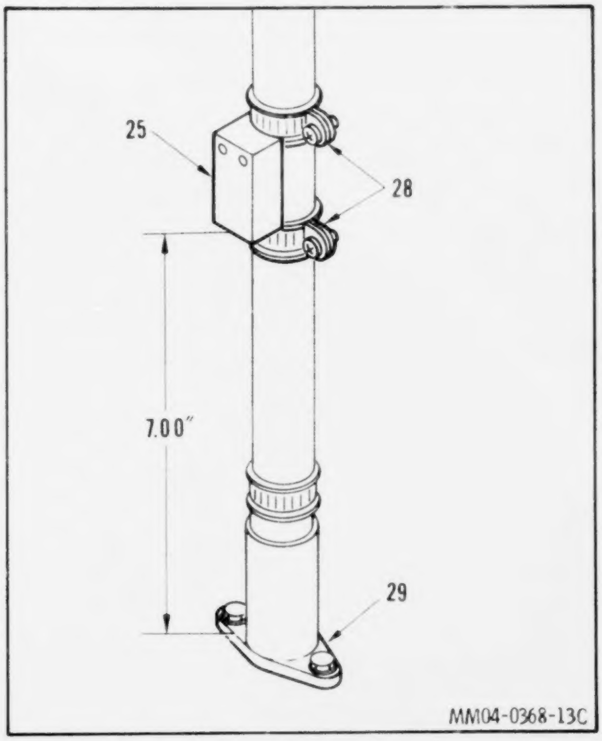
1. **Adjust transmitter (4) to 7.00 INCHES.**

   a. Loosen two clamps (28).

   b. Measure from top of lower mounting flange (29) to bottom of low fuel level sensor (25).

   c. Move low fuel level sensor (25) to **7.00 INCHES** from top of flange (29).

   d. Tighten two clamps (28).



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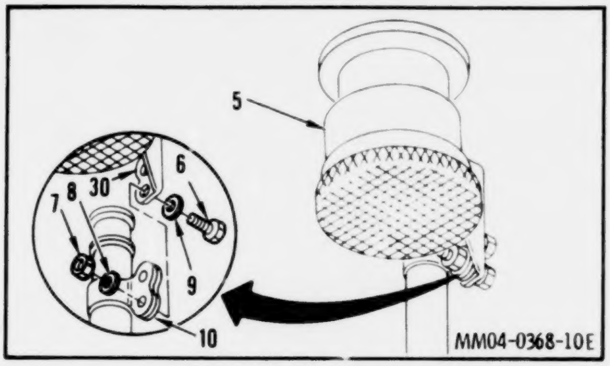
10-2-78. AFT FUEL CELL FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-78

E. INSTALLATION

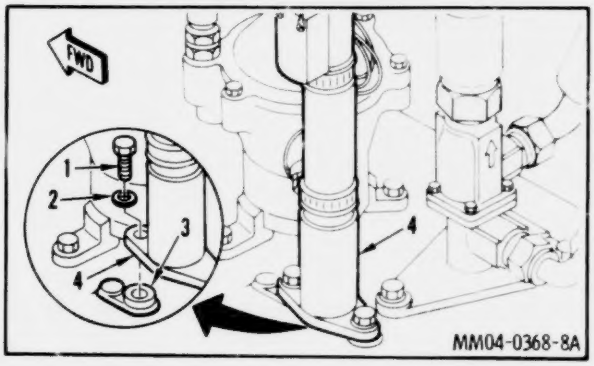


1. **Install valve (5) on transmitter mounting bracket (10).**

   a. Install two bolts (6) through washer (9), bracket (30), and bracket (10).

   b. Hold two bolts (6).

   c. Install two washers (8) and two nuts (7).



2. **Install transmitter (4) in aft fuel cell.**

   a. Place transmitter (4) in fuel cell with electrical connectors facing left side of helicopter.

   b. Aline transmitter (4) with fuel cell mounting flange (3).

   c. Install two washers (2) and two bolts (1).

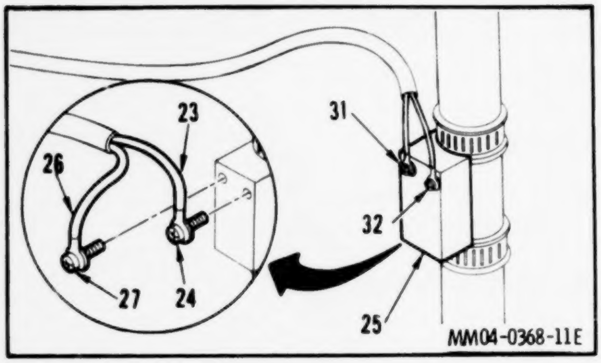
GO TO NEXT PAGE

10-2-78. AFT FUEL CELL FUEL QUANTITY TRANSMITTER REMOVAL/INSTALLATION (cont) 10-2-78

3. **Connect orange lead (23) and yellow lead GND (26) to low-level sensor (25).**

   a. Install screw (27) through yellow lead GND (26) into terminal (31).

   b. Install screw (24) through orange lead (23) into terminal (32).



4. **Connect red Lo Z lead (18) to Lo Z terminal (20).**

   a. Install screw (19) through red lead (18) into terminal (20).

   b. Place red lead (18) in retainer (22).

   c. Tighten screw (21).

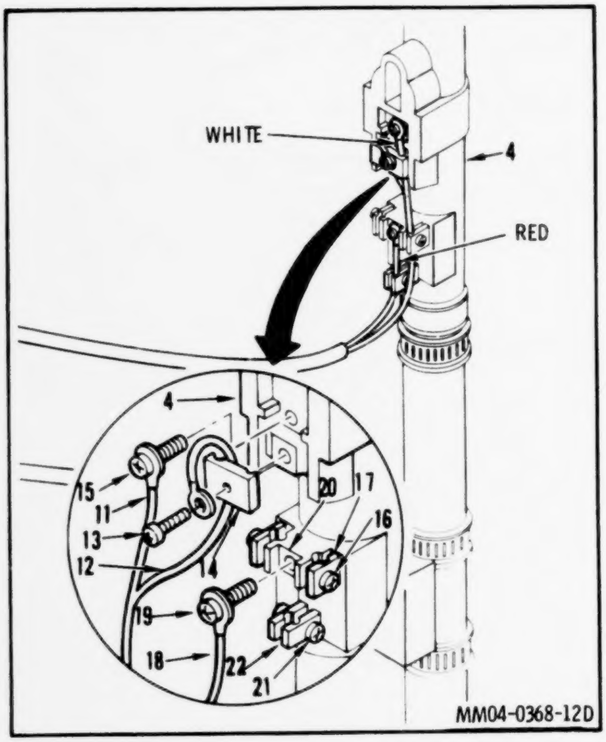
5. **Connect white Hi Z lead (11) and black lead (12) to transmitter (4).**

   a. Install screw (15) through white lead (11) into transmitter (4).

   b. Position clamp (14) over white lead (11).

   c. Install screw (13) through black lead (12) and clamp (14) into transmitter (4).

   d. Place white lead (11) in retainer (17). Tighten screw (19).



6. **Inspect (TI).**

7. **Install aft fuel cell aft cover and access panel** (para 10-2-68).

8. **Perform fuel quantity indication/fuel transfer operational check** (TM 55-1520-238-T).

END OF TASK

10-2-79. AFT FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION 10-2-79

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

Seal
Packing
(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

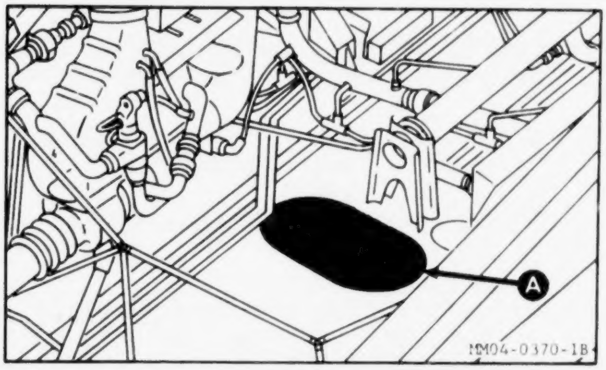
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-68	Aft fuel cell access panel and access cover removed



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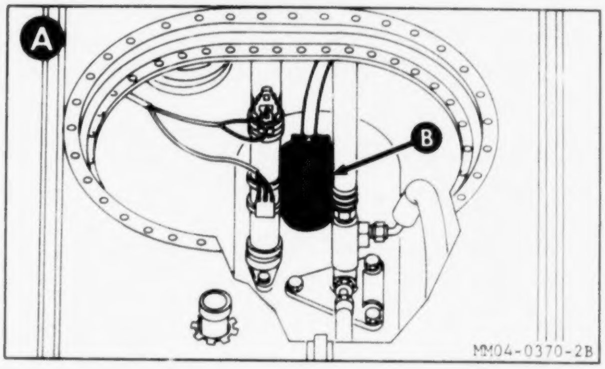
10-2-79. AFT FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-79

A. REMOVAL



WARNING

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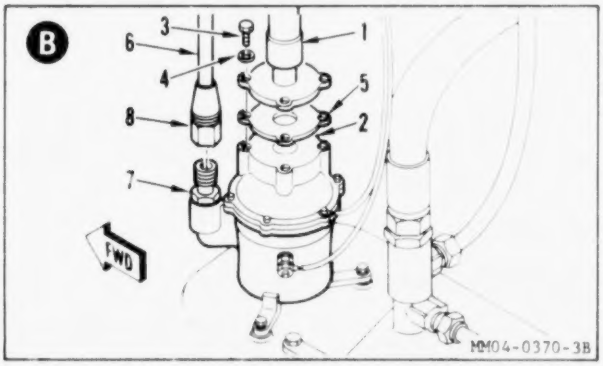
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect refueling hose (1) from aft fuel cell fuel shutoff valve (2).**
   - a. Remove four bolts (3) and washers (4).
   - b. Remove and discard seal (5).
2. **Remove pilot valve hose (6) from valve (2).**
   - a. Hold union (7).
   - b. Remove hose nut (8) from union (7).

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10-2-79. AFT FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-79

NOTE

Identify electrical leads before removal.

3. **Disconnect leads (9) and (10) from valve (2).**
   - a. Remove screw (11), washer (12), and lead (9) from valve (2).
   - b. Remove nut (13) and lead (10) from stud (14).
4. **Remove valve (2) from mounting pad.** Remove three bolts (15) and washers (16).
5. **Remove union (7) from shutoff valve (2).** Discard packing (17).

B. **CLEANING**

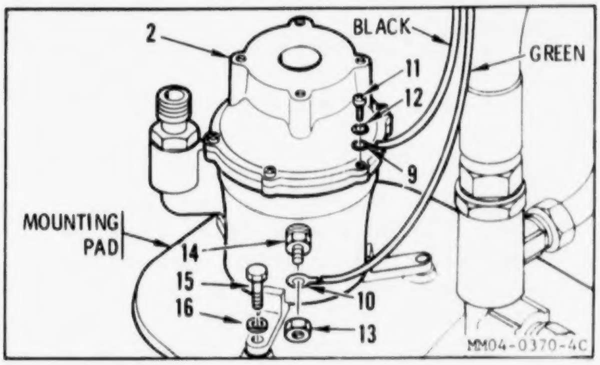
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

D. **INSTALLATION**

1. **Install union (7) in valve (2).**
   - a. Lubricate new packing (17) and union (7) threads. Use petrolatum (E16).
   - b. Install packing (17) on union (7).
   - c. Install union (7) in valve (2).
2. **Install valve (2) on mounting pad.**
   - a. Aline valve (2) with union (7) facing left front of fuel cell.
   - b. Install three washers (16) and bolts (15).


2
BLACK
GREEN
11
12
9
MOUNTING PAD
14
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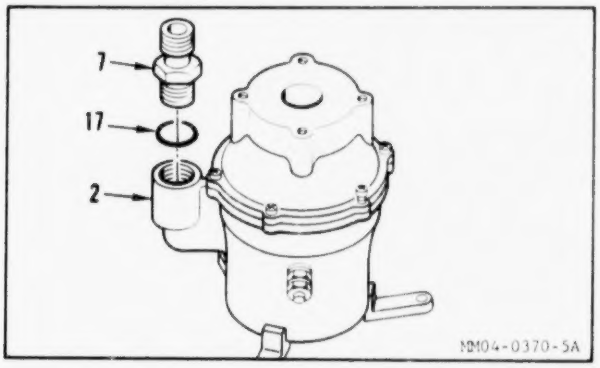
MM04-0370-4C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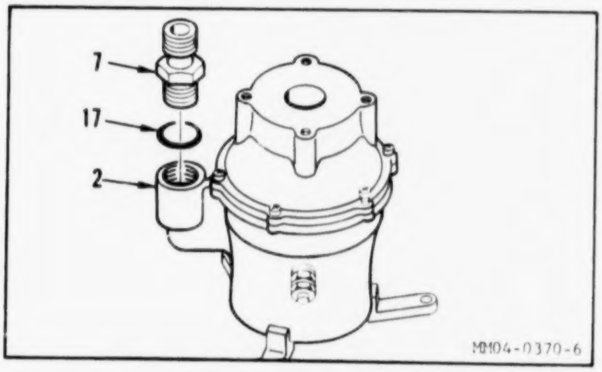
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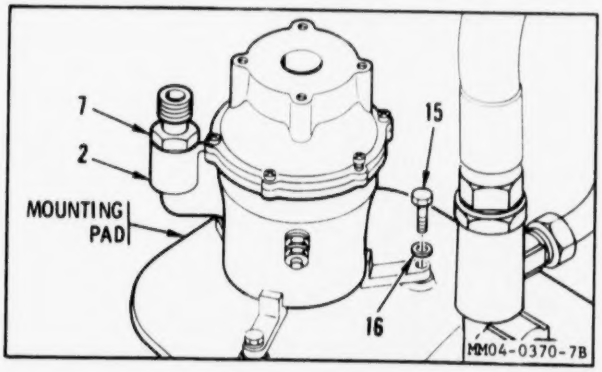
MM04-0370-6


7
15
2
MOUNTING PAD
16
MM04-0370-7B

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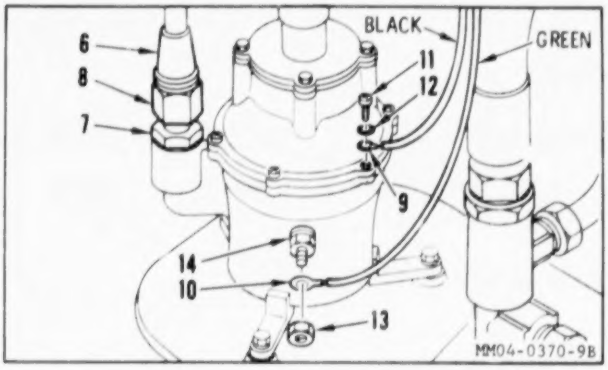
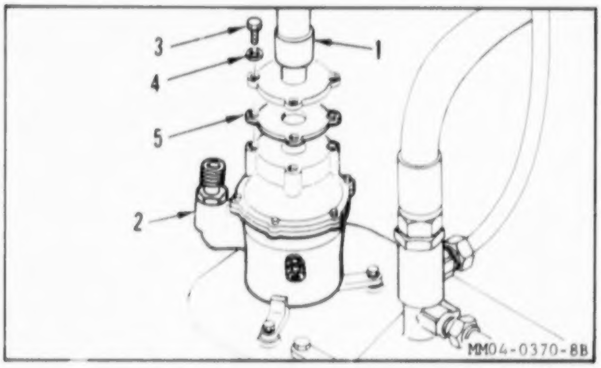
10-2-79. AFT FUEL CELL FUEL SHUTOFF VALVE REMOVAL/INSTALLATION (cont) 10-2-79



NOTE

Identify electrical leads before installation.

3. **Connect electrical leads (9) and (10) to shutoff valve (2).**
   - a. Install screw (11), washer (12) and lead (9).
   - b. Place lead (10) on stud (14).
   - c. Install nut (13) on stud (14).
4. **Install pilot valve hose (6) to union (7).**
   - a. Lubricate union (7) threads. Use petrolatum (E16).
   - b. Hold union (7).
   - c. Connect nut (8) to union (7).



5. **Connect refueling hose (1) to valve (2).**
   - a. Lubricate new seal (5) on both sides. Use petrolatum (E16).
   - b. Place seal (5) and hose (1) on valve (2).
   - c. Install four washers (4) and bolts (3).
6. **Inspect (TI).**
7. **Install aft fuel cell access panel and access cover removed** (para 10-2-68).
8. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-80. AFT AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION 10-2-80

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

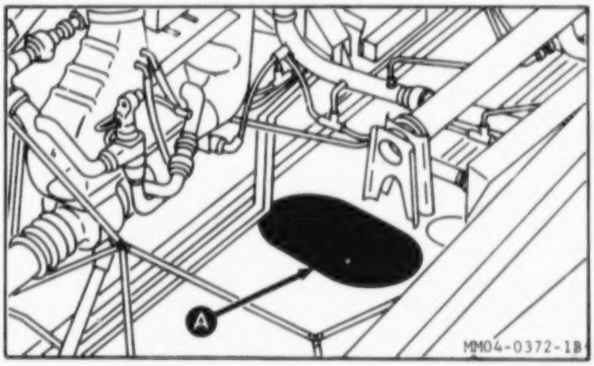
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell access panel and access cover removed



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10-2-80. AFT AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION (cont) 10-2-80

A. REMOVAL

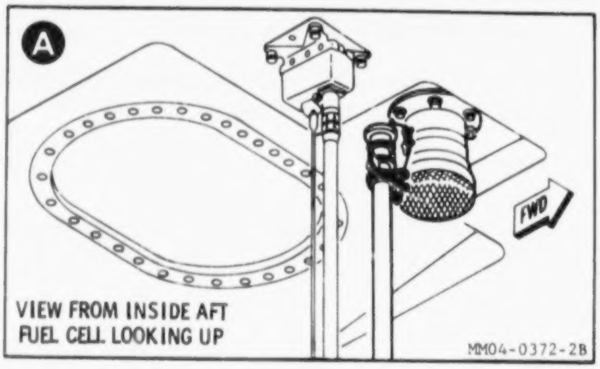
WARNING

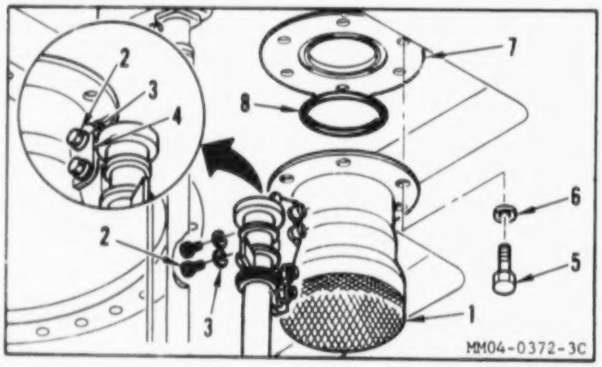
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove aft air vent/pressure relief valve (1) from aft fuel cell.**
   a. Remove two bolts (2) and washers (3) from support bracket (4).
   b. Remove six bolts (5) and washers (6) from mounting pad (7).
   c. Remove valve (1) from bracket (4) mounting pad (7).
   d. Remove and discard packing (8).
   e. Remove valve (1) from aft fuel cell.





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-2-80. AFT AIR VENT/PRESSURE RELIEF VALVE REMOVAL/INSTALLATION (cont) 10-2-80

CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

INSPECTION

Check all removed and attaching parts for cracks and nicks (para 10-2-1).

INSTALLATION

Install valve (1) in aft fuel cell.

a. Lubricate new packing (8). Use petrolatum (E16).

b. Install packing (8) on pad (7).

c. Position valve (1) on pad (7) with bracket (9) facing right side of fuel cell.

d. Aline holes in bracket (9) with holes in bracket (4).

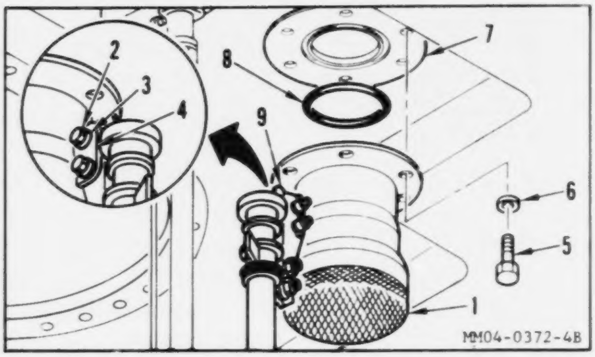
e. Install six washers (6) and bolts (5).

f. Install two washers (3) and bolts (2).

Inspect (TI).

Install aft fuel cell fuel access panel and access cover (para 10-2-68).

Perform pressure refueling/defueling operational check (TM 55-1520-238-T).



D OF TASK

10-2-81. AFT FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-81

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (4)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

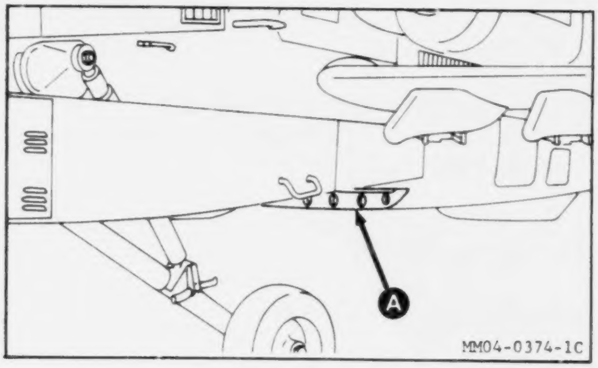
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell access panel and fuel cell access cover removed
TM 9-1090-208-23	Ammunition storage magazine removed



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10-2-81. AFT FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-81

A. REMOVAL

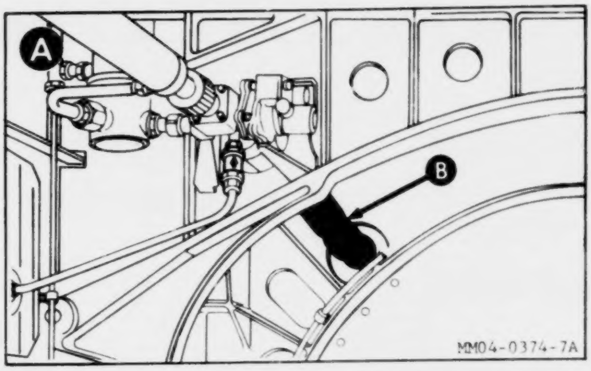
WARNING

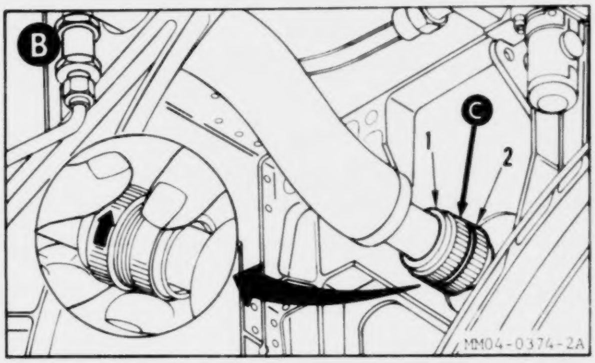
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

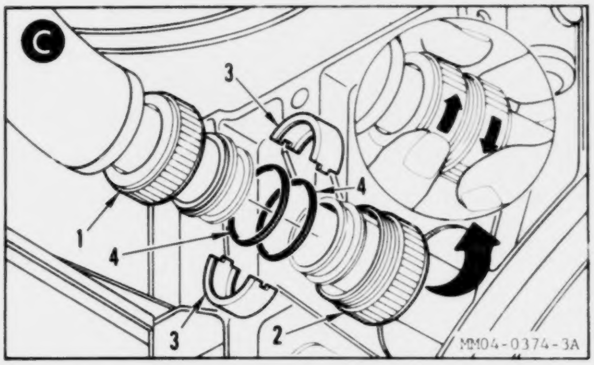
CAUTION

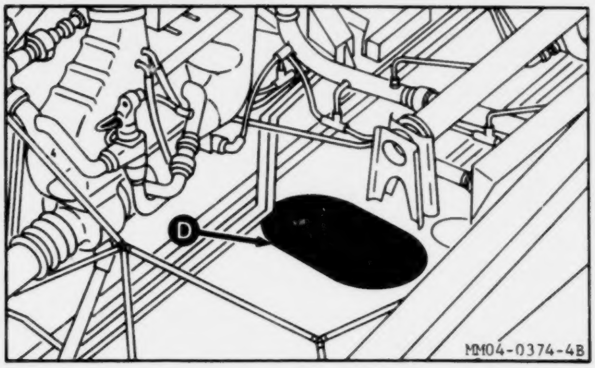
Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Disconnect aft refueling hose coupling nut (1) from coupling body (2).**
   - a. Turn nut (1) until it clears body (2).
   - b. Pull body (2) back.
   - c. Remove snap retainer halves (3).
   - d. Remove and discard two packings (4).









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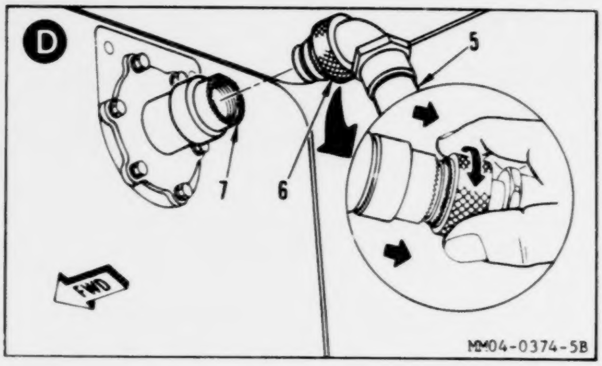
10-2-81. AFT FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-81

2. Disconnect refueling hose (5) in aft fuel cell.

a. Pull sleeve connector (6) to release locking teeth from ratchet adapter (7).

b. Turn connector (6) until sleeve clears adapter (7).

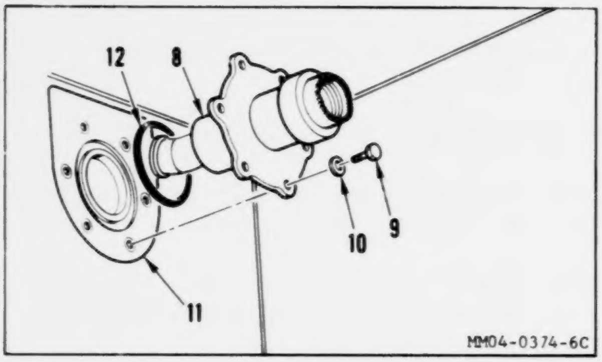


3. Remove aft refueling breakaway valve (8).

a. Remove six bolts (9) and washers (10).

b. Remove valve (8) from mounting pad (11).

c. Remove and discard packing (12).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for cracks, nicks, gouges, and damaged threads (para 10-2-1).

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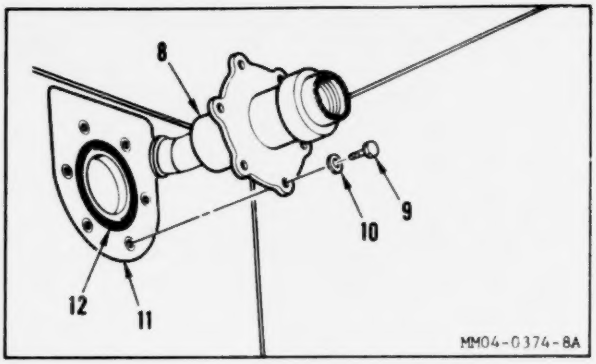
10-2-81. AFT FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-81

D. INSTALLATION



1. **Install valve (8) in aft fuel cell.**

   a. Lubricate new packing (12). Use petrolatum (E16).

   b. Install new packing (12) on pad (11).

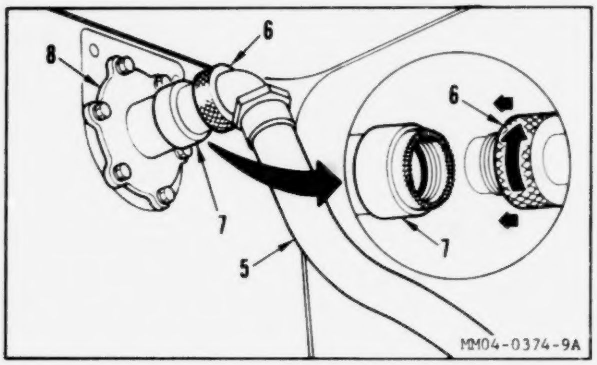
   c. Place valve (8) through opening in pad (11). Aline mounting bolt holes.

   d. Install six washers (10) and bolts (9).

2. **Connect hose (5) to valve (8).**

   a. Install connector (6) on hose (5) to adapter (7).

   b. Turn connector (6) until firmly seated and locking teeth engage with adapter (7).



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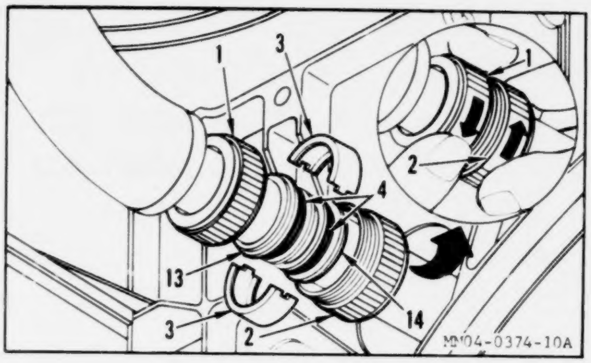
10-2-81. AFT FUEL CELL REFUELING BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-81



3. **Connect coupling nut (1) to coupling body (2).**
   a. Lubricate two new packings (4). Use petrolatum (E16).
   b. Install one packing (4) on refueling hose coupling ferrule (13).
   c. Install one packing (4) on breakaway valve ferrule (14).
   d. Install snap retainer halves (3) between packings (4).
   e. Lubricate threads of body (2). Use petrolatum (E16).
   f. Slide and hold body (2) over two packings (4) and retainer halves (3).
   g. Connect nut (1) to body (2) and tighten.
4. **Inspect (TI).**
5. **Install aft fuel cell access panel and fuel cell access cover** (para 10-2-68).
6. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
7. **Install ammunition storage magazine** (TM 9-1090-208-23).

END OF TASK

10-2-82. AFT FUEL CELL FUEL OUTLET BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-82

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (5)
	Packing
(E10)	Sealant, Adhesive
(E16)	Adhesive
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell access panel and access cover removed

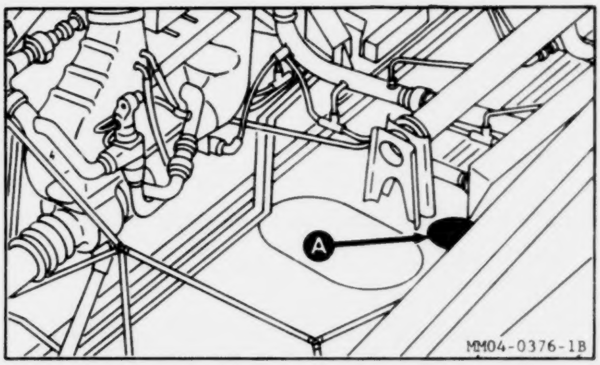
A. REMOVAL

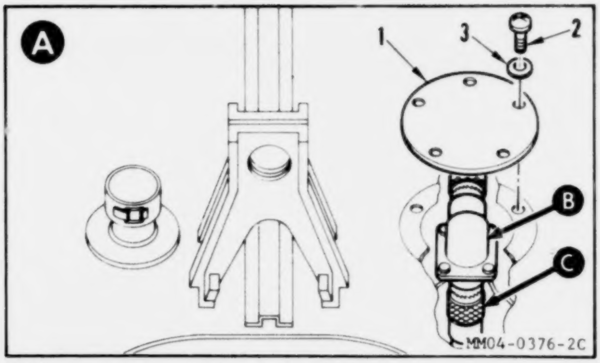
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.





1. **Remove access panel (1).**

   a. Remove fillet seal from around panel (1) and transmission deck.

   b. Remove five screws (2) and packings with retainer (3). Discard packings with retainer.

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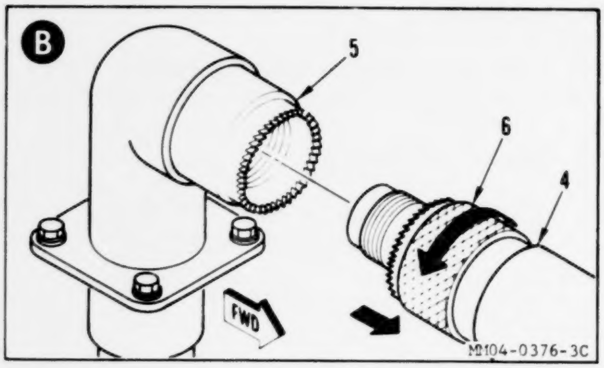
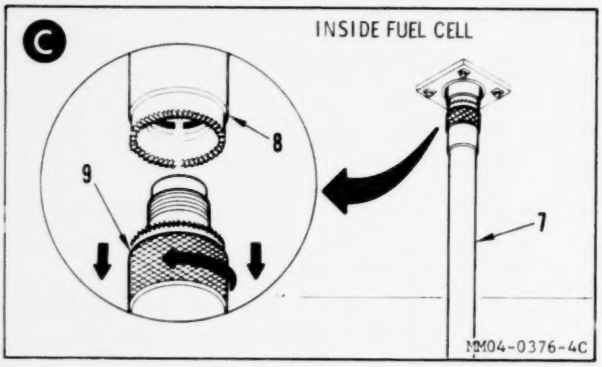
10-2-82. AFT FUEL CELL FUEL OUTLET BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-82

2. **Disconnect aft fuel cell upper fuel supply hose (4) from ratchet adapter (5).**
   a. Pull ratchet sleeve connector (6) back to release locking teeth from adapter (5).
   b. Turn connector (6) until sleeve clears adapter (5).


B
5
6
4
FWD
MM04-0376-3C

3. **Disconnect aft fuel cell fuel supply hose (7) from ratchet adapter (8).**
   a. Pull ratchet sleeve connector (9) down to release locking teeth from adapter (8).
   b. Turn sleeve connector (9) until sleeve clears adapter (8).


C
INSIDE FUEL CELL
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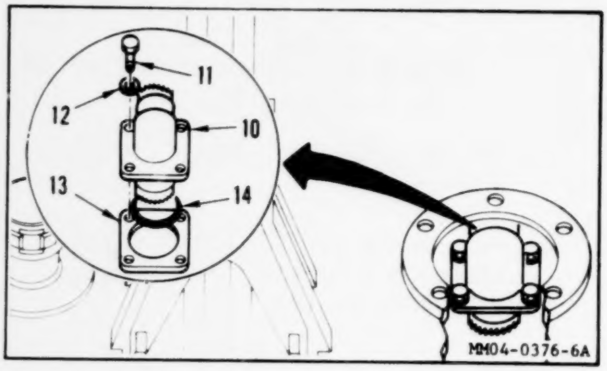
MM04-0376-4C

4. **Remove aft fuel outlet breakaway valve (10).**
   a. Remove four bolts (11) and washers (12).
   b. Remove valve (10) from mounting pad (13).
   c. Remove and discard packing (14).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MM04-0376-6A

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B. CLEANING

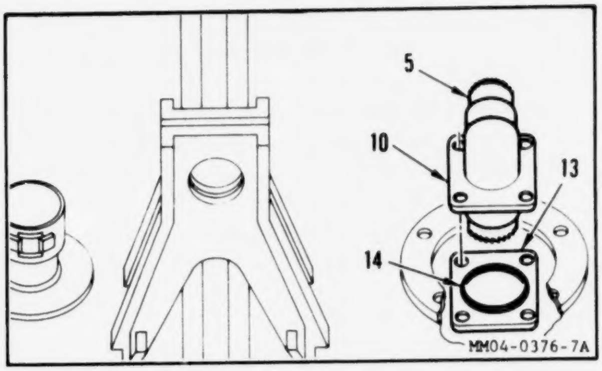
Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

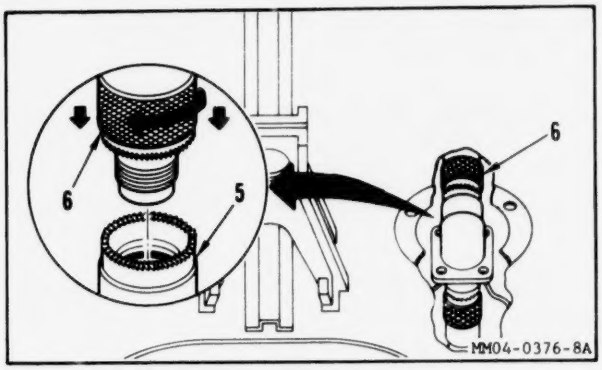
Check fuel supply hose for cracks, nicks, and damaged threads (para 10-2-1).

D. INSTALLATION

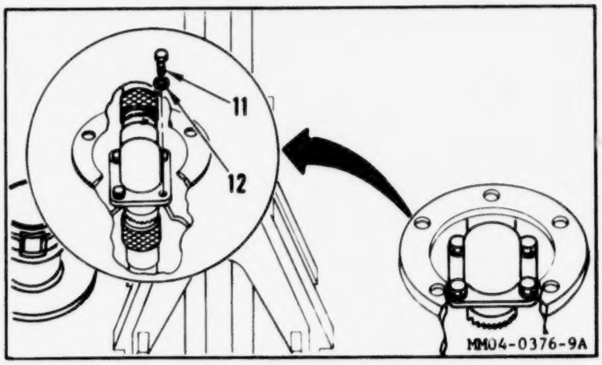
1. **Install valve (10).**
   a. Lubricate new packing (14). Use petrolatum (E16).
   b. Place packing (14) on mounting pad (13).
   c. Position valve (10) on pad (13). Adapter (5) must face forward.



2. **Connect connector (6) to adapter (5).**
   a. Lubricate threads on connector (6). Use petrolatum (E16).
   b. Attach connector (6) to adapter (5).
   c. Turn connector (6) until firmly seated and locking teeth engage with adapter (5).



3. **Install four washers (12) and bolts (11).**



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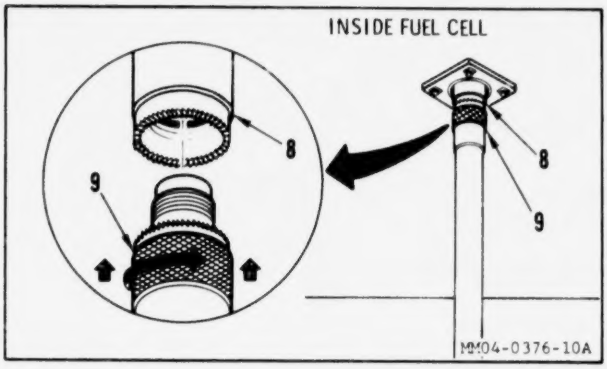
10-2-82. AFT FUEL CELL FUEL OUTLET BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-82

4. **Connect connector (9) to adapter (8) inside aft fuel cell.**

   a. Lubricate threads on connector (9). Use petrolatum (E16).

   b. Attach connector (9) to adapter (8).

   c. Turn connector (9) until seated and locking teeth engage fully with adapter (8).



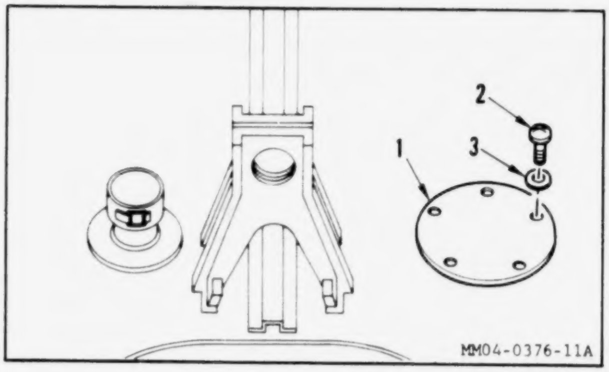
5. **Inspect (TI).**

6. **Install access panel (1).**

   a. Aline panel (1) with deck mounting holes.

   b. Lubricate five packings with retainer (3). Use petrolatum (E16).

   c. Install five packings with retainer (3) and screws (2).



7. **Apply adhesive sealant as fillet seal to access panel (1)** (TM 55-1500-204-25/1). Use sealant (E10).

8. **Inspect (TI).**

9. **Install aft fuel cell access panel and access cover** (para 10-2-68).

10. **Perform fuel crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-83. AFT FUEL CELL REFUELING HOSE REPLACEMENT 10-2-83

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Seal
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

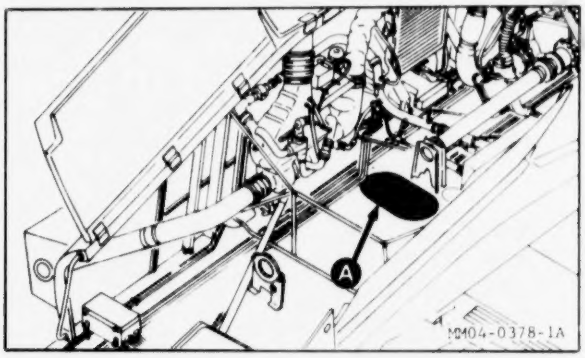
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell access panel and fuel cell access cover removed



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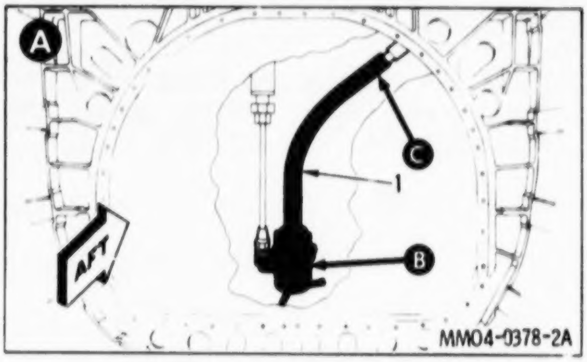
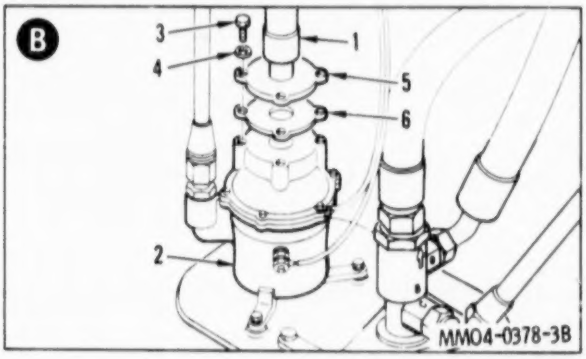
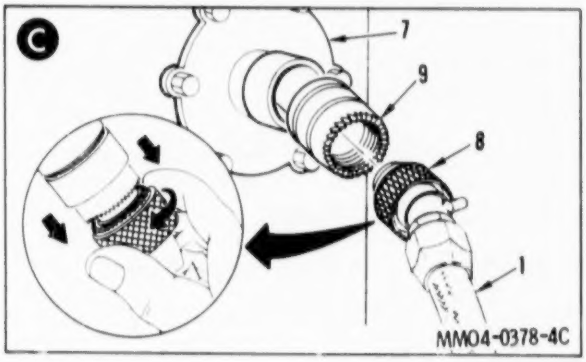
10-2-83. AFT FUEL CELL REFUELING HOSE REPLACEMENT (cont) 10-2-83

A. REMOVAL







WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Remove refueling hose (1) from aft fuel cell.**
2. **Disconnect hose (1) from shutoff valve (2).**
   - a. Remove four bolts (3) and washers (4).
   - b. Remove refueling hose mounting flange (5) from flange on valve (2).
   - c. Remove and discard seal (6).
3. **Disconnect hose (1) from breakaway valve (7).**
   - a. Pull ratchet sleeve (8) away from fitting (9) to release locking teeth.
   - b. Turn sleeve (8) until it clears fitting (9).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

GO TO NEXT PAGE

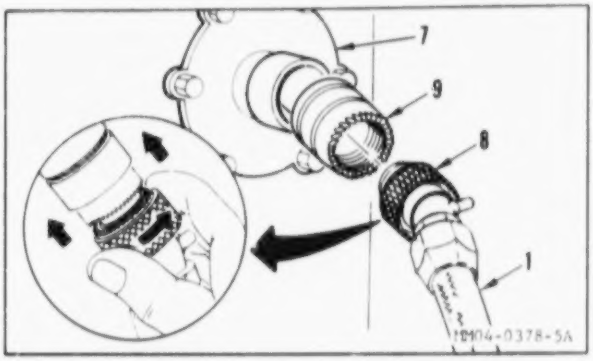
10-2-83. AFT FUEL CELL REFUELING HOSE REPLACEMENT (cont) 10-2-83

C. INSPECTION

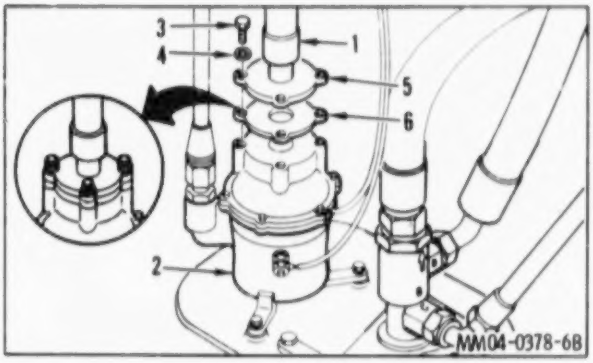
Check all removed and attaching parts for cracks, nicks, gouges, dents, and missing teeth (para 10-2-1).

D. INSTALLATION

1. **Install hose (1) in aft fuel cell.**
2. **Install hose (1) on valve (7).**
   a. Lubricate threads of sleeve (8). Use petrolatum (E16).
   b. Connect sleeve (8) to fitting end (9).
   c. Turn sleeve (8) until firmly seated and locking teeth engage with fitting end (9).



3. **Install hose (1) on valve (2).**
   a. Lubricate new seal (6) on both sides. Use petrolatum (E16).
   b. Install new seal (6) on flange of shutoff valve (2).
   c. Place refueling hose mounting flange (5) on shutoff valve (2). Aline bolt holes.
   d. Install four washers (4) and bolts (3).



4. **Inspect (TI).**
5. **Install aft fuel cell fuel access panel and fuel cell access cover** (para 10-2-68).
6. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

END OF TASK

10-2-84. AFT FUEL CELL LOWER VENT TUBE AND LIGHTNING ARRESTOR REMOVAL/INSTALLATION 10-2-84

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

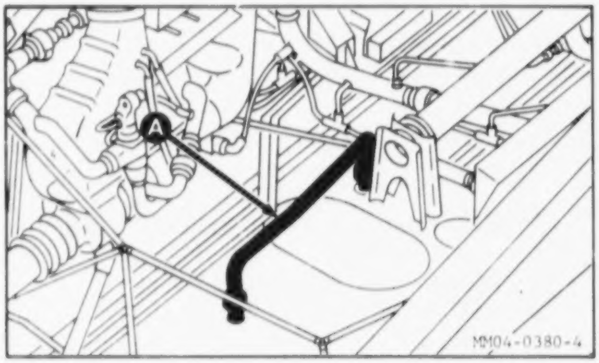
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 11-1520-238-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-3-10	Catwalk removed (as required)
6-2-8	No. 4 drive shaft removed
TM 11-1520-238-23	Instrumentation mounting brackets removed as required



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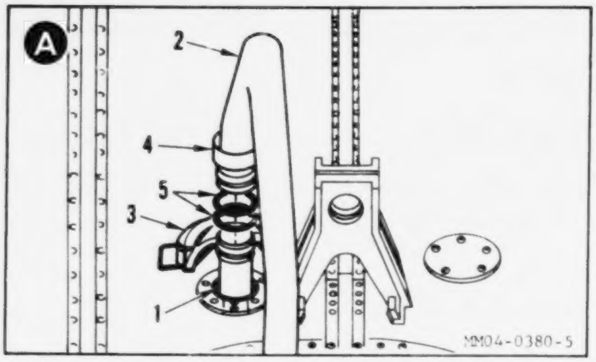
-2-84. AFT FUEL CELL LOWER VENT TUBE AND LIGHTNING ARRESTOR REMOVAL/INSTALLATION (cont) 10-2-84

REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.



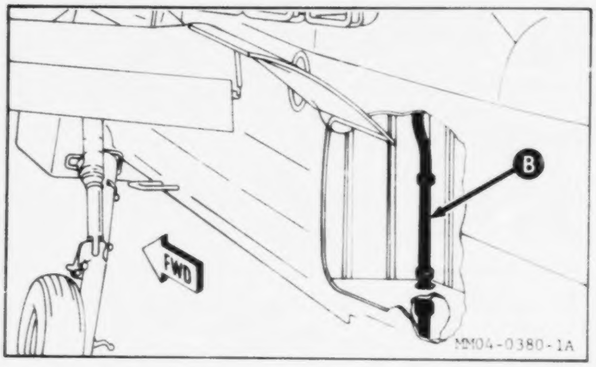
Disconnect aft fuel cell lower vent tube (1) from aft fuel cell upper vent tube (2) on transmission deck.

a. Unlatch and remove retainer (3).

b. Slide body (4) over upper tube (2).

c. Remove and discard two packings (5).

d. Remove body (4) from upper tube (2).

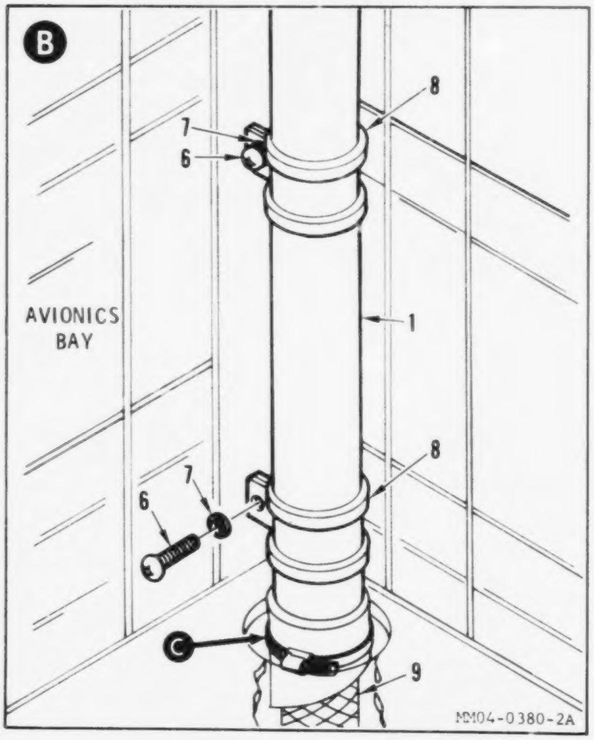


Remove tube (1) from avionics bay.

a. Remove two screws (6) and washers (7).

b. Remove two clamps (8) from vent tube (1).

c. Raise tube (1) until lightning arrestor (9) is in avionics bay.



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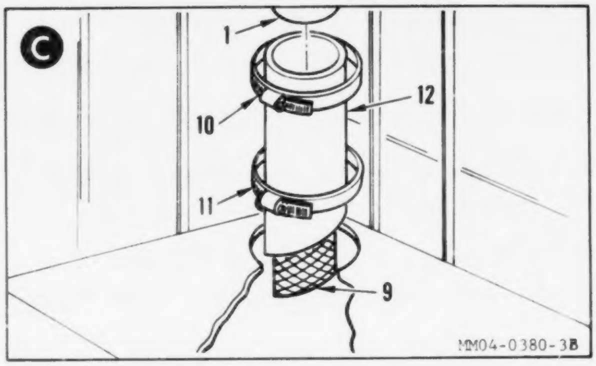
10-2-84. AFT FUEL CELL LOWER VENT TUBE AND LIGHTNING ARRESTOR REMOVAL/INSTALLATION (cont) 10-2-84

d. Remove two hose clamps (10) and (11) from vent tube (1).

e. Pull vent hose (11) clear of vent tube (1).

f. Pull lightning arrestor (9) out of vent hose (11).

g. Remove tube (1) through top of avionics bay.

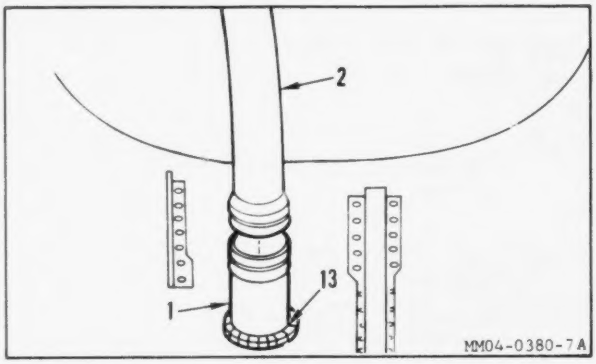


B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check vent tubes, vent hose and lightning arrestor for dents, cracks, nicks, or tears (para 10-2-1).



D. INSTALLATION

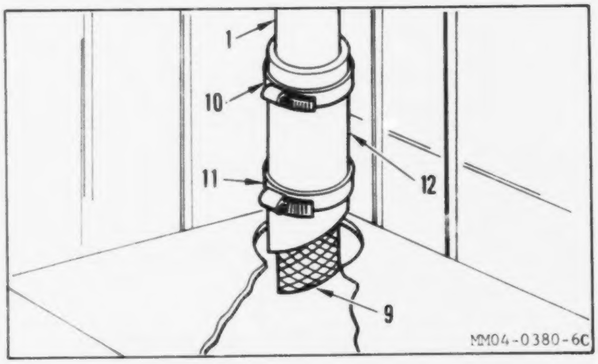
1. Install aft fuel cell lower vent tube (1) and arrestor (9) in avionics bay.

   a. Insert vent tube (1) through main transmission deck opening (13).

   b. Install hose (12) over end of vent tube (1).

   c. Install clamp (10) on hose (12) and tube (1).

   d. Insert arrestor (9) into end of hose (12). Install with flange on end of arrestor down.



   e. Install hose clamp (11) on hose (12) and arrestor (9).

   f. Place arrestor (9) through opening in floor of avionics bay.

   g. Aline lower vent tube (1) with upper vent tube (2).

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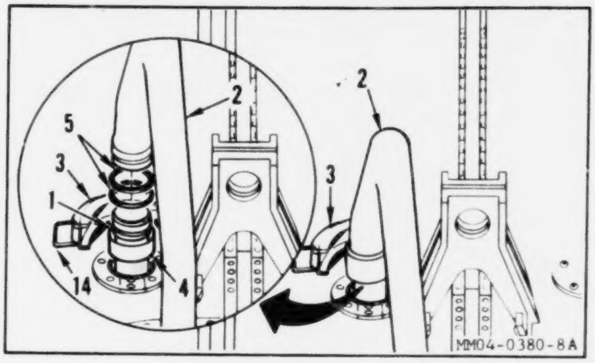
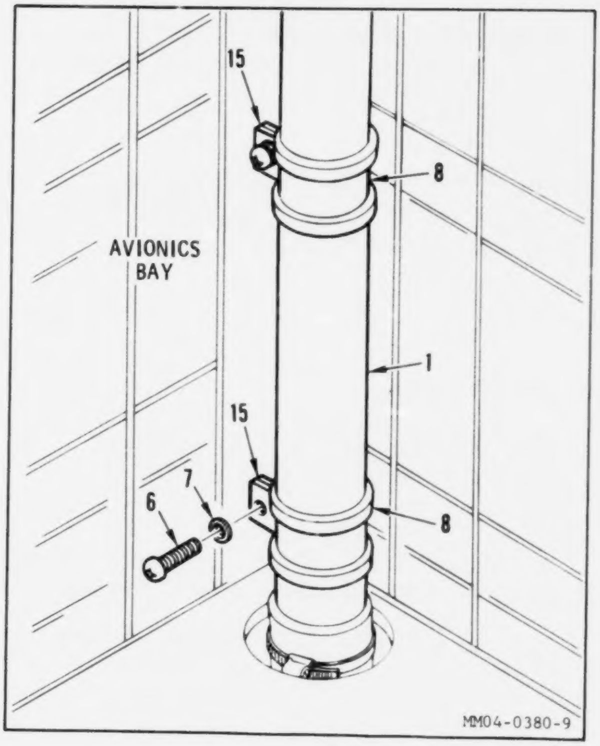
10-2-84. AFT FUEL CELL LOWER VENT TUBE AND LIGHTNING ARRESTOR REMOVAL/INSTALLATION (cont) 10-2-84

2. **Connect tube (1) to tube (2) from transmission deck.**
   a. Place body (4) on tube (1).
   b. Lubricate two new packings (5). Use petrolatum (E16).
   c. Install one packing (5) on tube (2).
   d. Install one packing (5) on tube (1).
   e. Slide and center body (4) over packings.
   f. Install retainer (3) over body (4). Ensure safety spring (14) is fully locked.
3. **Install two clamps (8) on tube (1) from avionics bay.** Install two screws (6) through two washers (7) and clamps (8) into two brackets (15).
4. **Inspect (TI).**
5. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).
6. **Install No. 4 drive shaft** (para 6-2-8).
7. **Install catwalk sections (as required)** (para 2-3-10).
8. **Install instrumentation mounting brackets** (TM 11-1520-238-23).





END OF TASK

10-2-85. FUEL BOOST PUMP OUTLET HOSE REPLACEMENT 10-2-85

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-inch & 1-1/8 Open-end	5120-00-187-7133

Materials/Parts:

(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

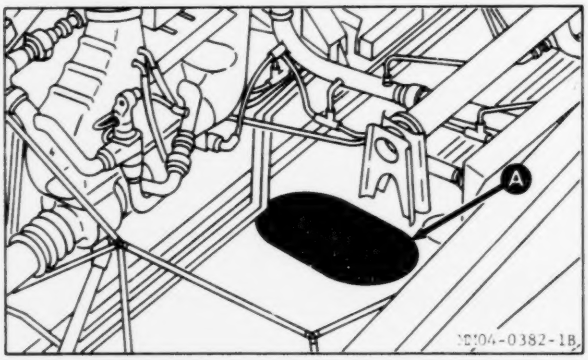
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-68	Aft fuel cell fuel access panel and access cover removed



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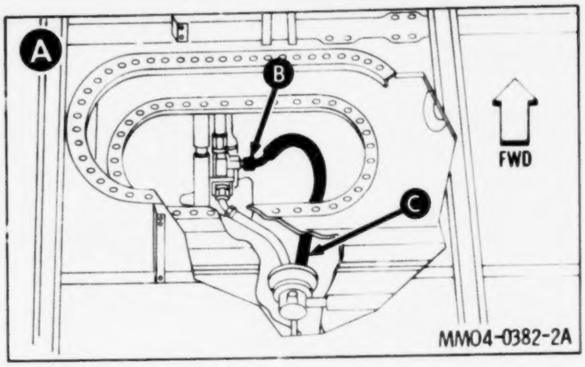
10-2-85. FUEL BOOST PUMP OUTLET HOSE REPLACEMENT (cont) 10-2-85

A. REMOVAL

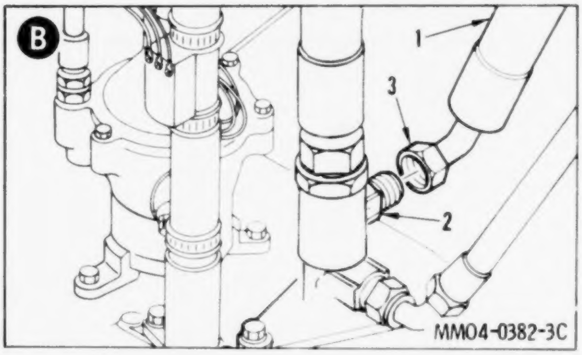


WARNING

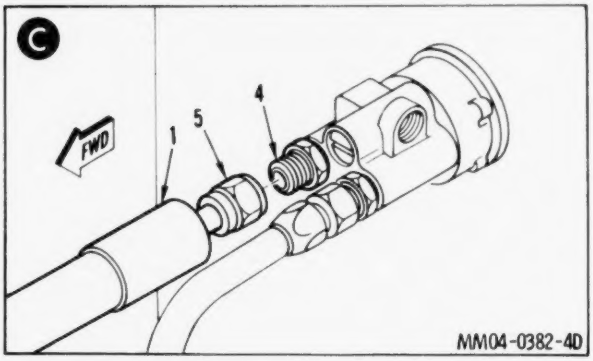
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.



1. **Disconnect fuel boost pump outlet hose (1) from check valve (2).**
   a. Hold check valve (2).
   b. Disconnect hose nut (3).
2. **Disconnect upper end of hose (1).**
   a. Hold union (4). Use 1-inch open-end wrench.
   b. Disconnect hose nut (5).
   c. Remove hose (1).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

GO TO NEXT PAGE

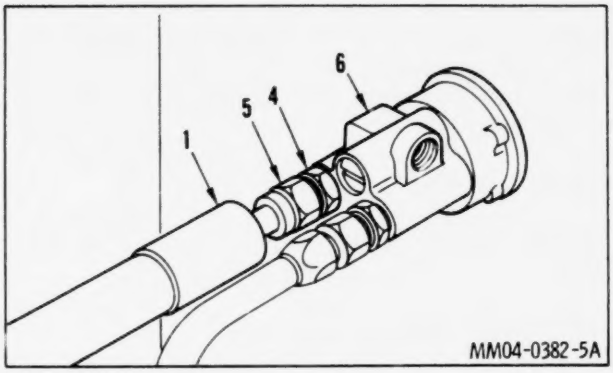
10-2-85. FUEL BOOST PUMP OUTLET HOSE REPLACEMENT (cont) 10-2-85

C. INSPECTION

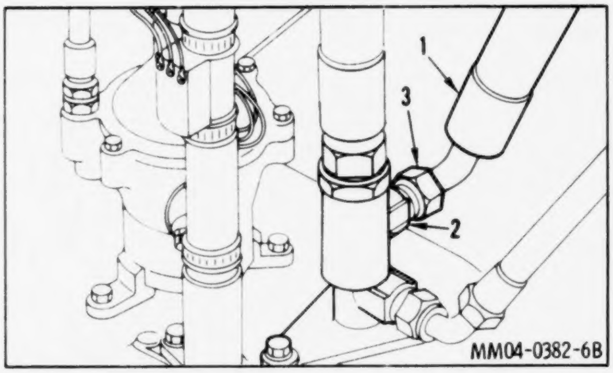
Check fuel boost pump outlet hose valve, and boost pump for cracks, gouges, nicks, and damaged threads (para 10-2-1).

D. INSTALLATION

1. **Connect hose (1) to pump (6) in aft fuel cell.**
   a. Lubricate union (4) threads. Use petrolatum (E16).
   b. Hold union (4). Use 1-inch open-end wrench.
   c. Connect nut (5) to union (4).



2. **Connect hose (1) to valve (2).**
   a. Lubricate valve (2) threads. Use petrolatum (E16).
   b. Hold valve (2).
   c. Connect nut (3) to valve (2).



3. **Inspect (TI).**
4. **Install aft fuel cell fuel access panel and access cover** (para 10-2-68).
5. **Perform fuel system priming operation** (para 1-5-11).
6. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-86. AFT FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT 10-2-86

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, 1-1/16 & 1-1/4 Open-end	5120-00-184-8676
Wrench, 15-inch adjustable	5120-00-423-6728

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

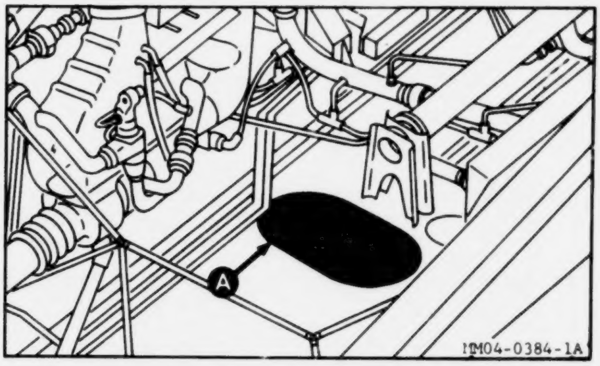
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

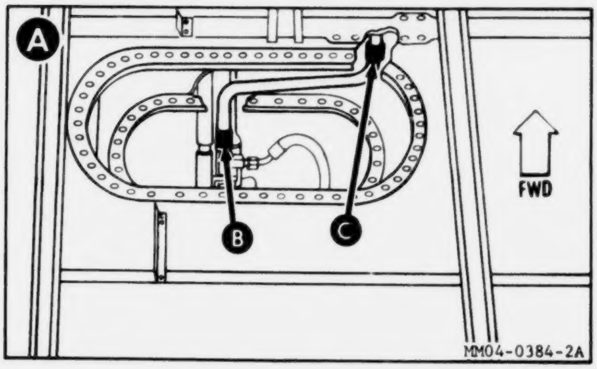
References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel safety system precautions observed
10-2-68	Aft fuel cell access panel and access cover removed





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10-2-86. AFT FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-86

A. REMOVAL

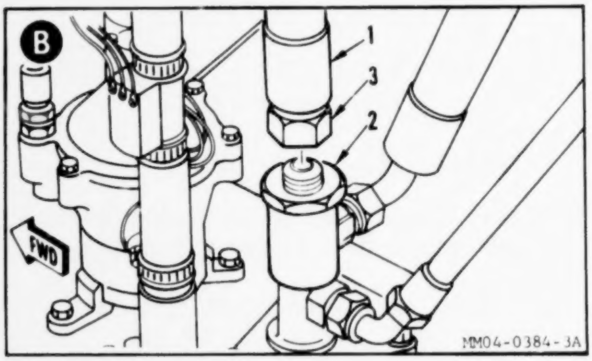
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

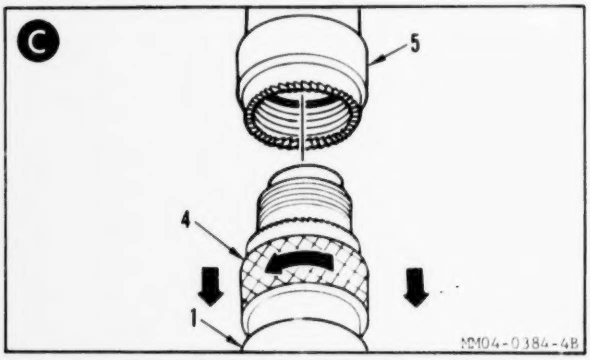
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

1. **Disconnect aft fuel cell engine fuel supply hose (1) from check valve (2).**
   a. Hold check valve (2). Use 15-inch adjustable wrench.
   b. Disconnect hose nut (3). Use 1-1/4 open-end wrench.



2. **Detach ratchet sleeve connector (4) from ratchet adapter (5).**
   a. Pull connector (4) down.
   b. Turn connector (4) to release locking teeth from adapter (5).
   c. Remove fuel supply hose (1).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

GO TO NEXT PAGE

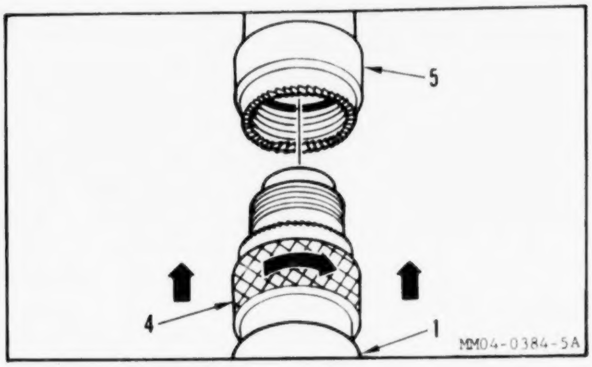
10-2-86. AFT FUEL CELL ENGINE FUEL SUPPLY HOSE REPLACEMENT (cont) 10-2-86

C. INSPECTION

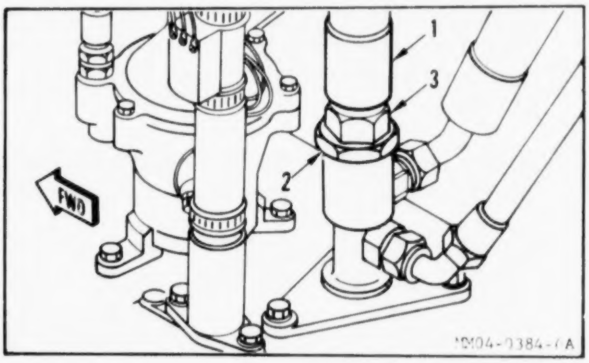
Check hose, valve, and adapter for cracks, nicks, dents, and damaged threads (para 10-2-1).

D. INSTALLATION

1. **Install hose (1) to adapter (5).**
   - a. Lubricate threads of connector (4). Use petrolatum (E16).
   - b. Install connector (4) on adapter (5). Turn connector (4) until firmly seated and locking teeth engage with adapter (5).



2. **Connect hose (1) to valve (2).**
   - a. Lubricate threads of check valve (2). Use petrolatum (E16).
   - b. Hold check valve (2). Use 15-inch adjustable wrench.
   - c. Connect nut (3) to valve (2). Use 1-1/4 open-end wrench.



3. **Inspect (TI).**
4. **Install aft fuel cell access panel and access cover** (para 10-2-68).
5. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-87. FUEL BOOST PUMP AIR INLET HOSE REPLACEMENT 10-2-87

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E16) Petrolatum
(E32) Cloth, Lint-Free

Personnel Required:

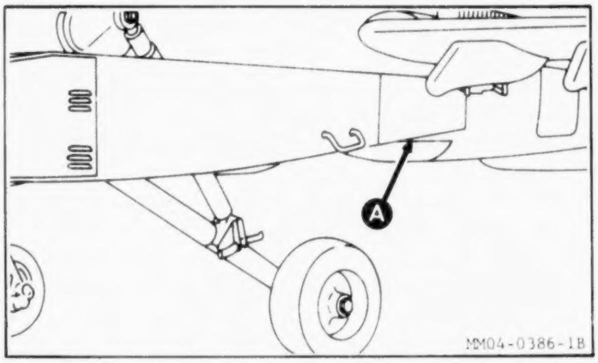
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 9-11-1520-238-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-3-3	Aft fuel cell removed
6-2-6	Forward hanger bearing and support removed
TM 11-1520-238-23	Crypto set removed



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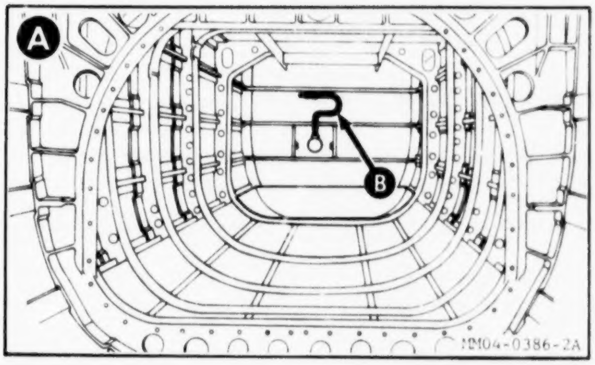
10-2-87. FUEL BOOST PUMP AIR INLET HOSE REPLACEMENT (cont) 10-2-87

A. REMOVAL

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

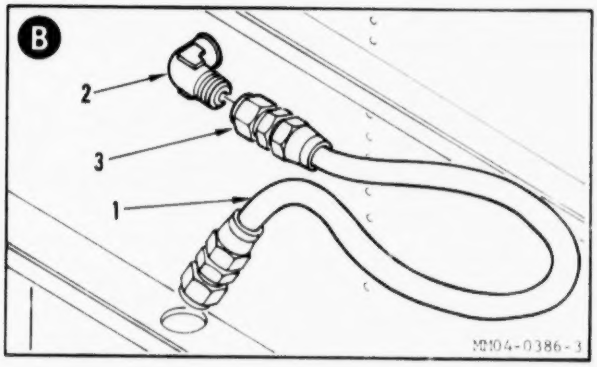


1. **Remove aft fuel boost pump air inlet hose (1).**

   a. Hold elbow (2).

   b. Disconnect hose nut (3).

   c. Remove hose (1).



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10-2-87. FUEL BOOST PUMP AIR INLET HOSE REPLACEMENT (cont) 10-2-87

B. CLEANING

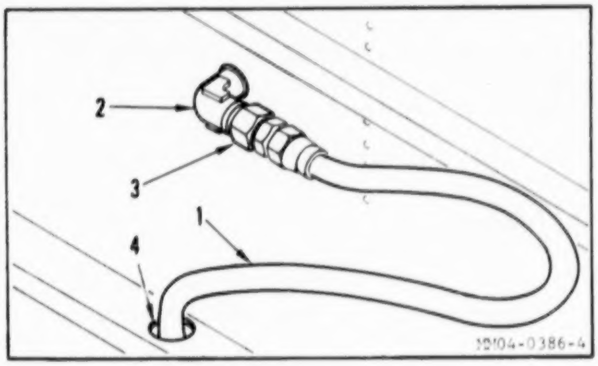
Wipe elbow and hose with a clean lint-free cloth (E32).

C. INSPECTION

Check elbow and hose for cuts, nicks, cracks, and damaged threads.

D. INSTALLATION

1. Install hose (1).
    a. Route hose (1) through hole (4) in structure.
    b. Lubricate threads of elbow (2). Use petrolatum (E16).
    c. Hold elbow (2).
    d. Connect hose nut (3) to elbow (2).



2. Inspect (TI).
3. Install aft fuel cell (para 10-3-4).
4. Install crypto set (TM 11-1520-238-23).

END OF TASK

10-2-88. FORWARD FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION 10-2-88

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Tool Kit, Electrical Repairer's	5180-00-323-4915

Personnel Required:

67R10 Attack Helicopter Repairer or
68F10 Aircraft Electrician
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T

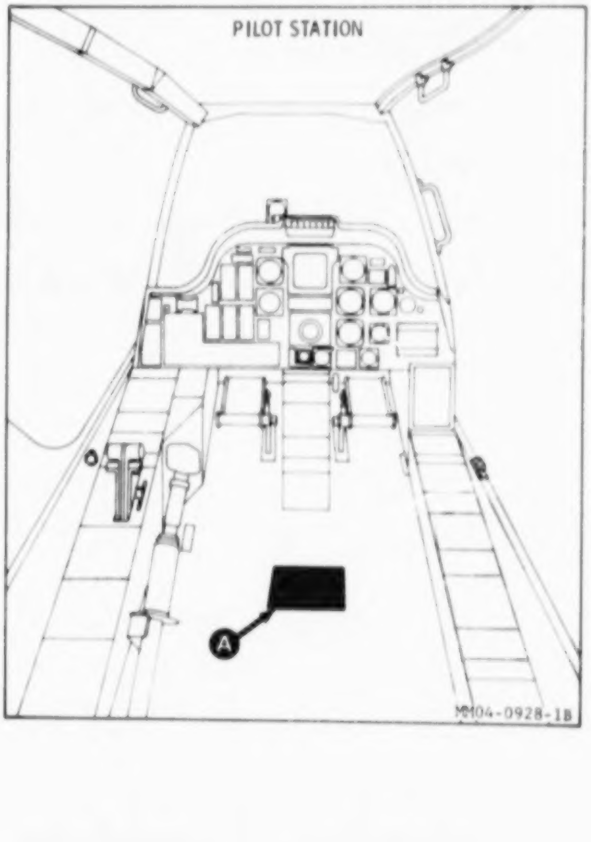
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-3-12	Pilot seat removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open FUEL FILL circuit breaker on pilot forward circuit breaker panel.**



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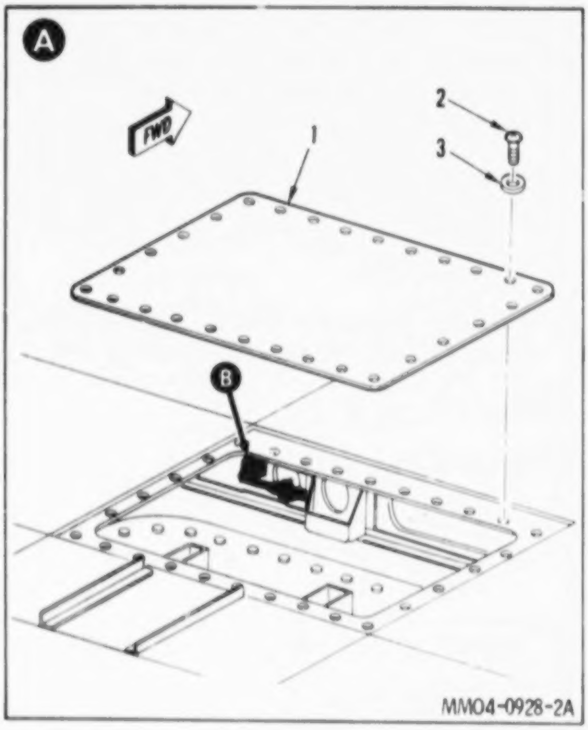
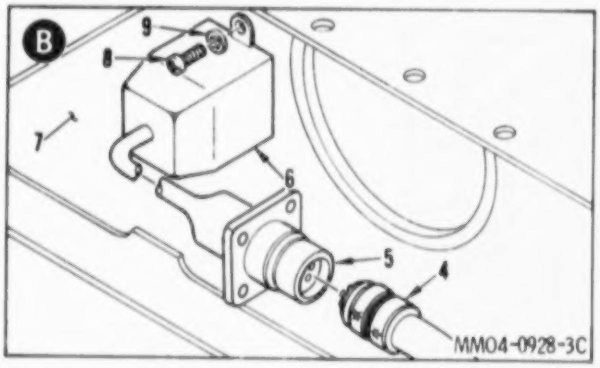
10-2-88. FORWARD FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION (cont) 10-2-88

3. **Remove access panel (1).** Remove 28 screws (2) and washers (3).



4. **Detach connector P1066 (4) from connector J1066 (5).**

5. **Remove forward fuel cell fuel valve isolation switch (6) from frame (7).** Remove two screws (8) and washers (9).



B. CLEANING

Wipe all removed and attaching parts with a clean rag.

C. INSPECTION

Check all removed and attaching parts for damage (para 10-2-1).

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8. FORWARD FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION (cont) 10-2-88

TALLATION

tall switch (6) on frame (7).
tall two washers (9) and
ews (8).

ach connector P1066 (4)
connector J1066 (5).

pect (TI).

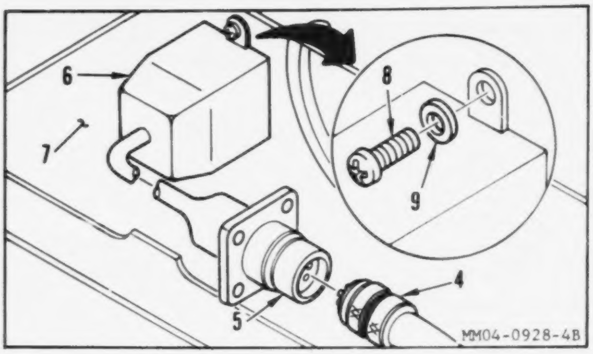
form pressure refueling/defueling
erational check (TM 55-1520-238-T).

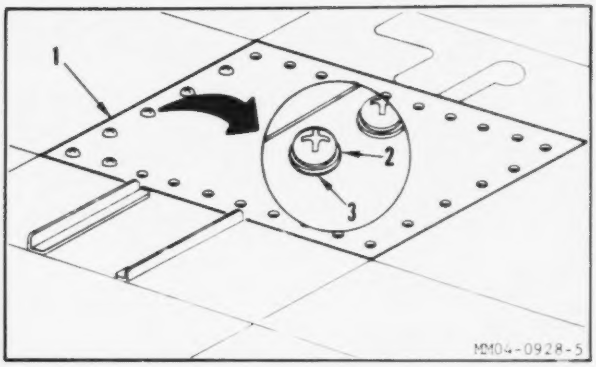
tall panel (1).

Aline panel (1) with deck
screw holes.

Install 28 washers (3) and
screws (2).

tall pilot seat (para 2-3-12).





TASK

10-2-89. AFT FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION 10-2-89

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (7)
(E10)	Sealant, Adhesive

Personnel Required:

67R10	Attack Helicopter Repairer
68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1500-204-25/1
TM 55-1520-238-T

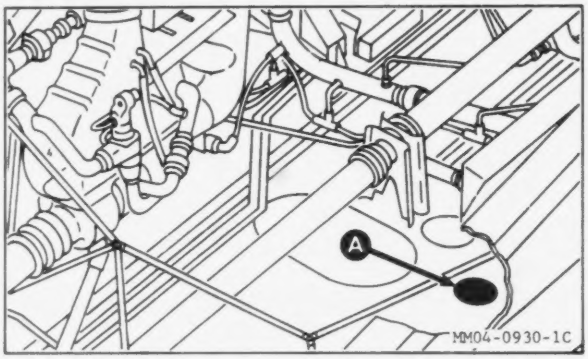
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access doors T250L, T250R, T290L, T290R, and L325 opened
2-3-10	Catwalk removed (as required)
7-4-21	Utility hydraulic accumulator removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open FUEL FILL circuit breaker on pilot forward circuit breaker panel.**



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10-2-89. AFT FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION (cont) 10-2-89

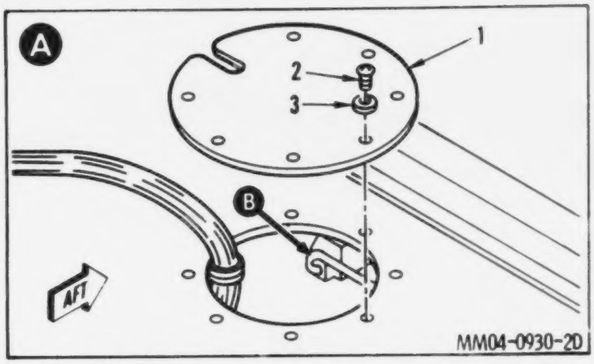
WARNING

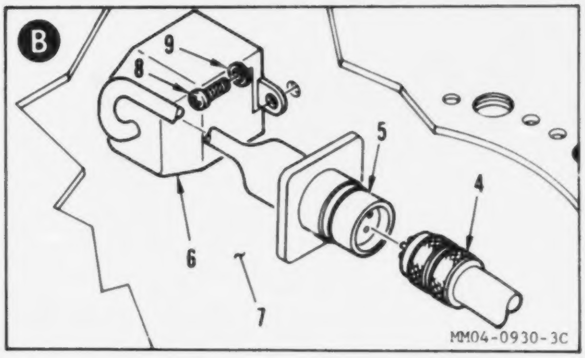
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

3. **Remove access cover (1) from aft deck.** Remove seven screws (2) and packings with retainers (3). Discard packings with retainers.

4. **Detach connector P1067 (4) from connector J1067 (5).**

5. **Remove aft fuel cell fuel valve isolation switch (6) from frame (7).** Remove two screws (8) and washers (9).





B. **CLEANING**

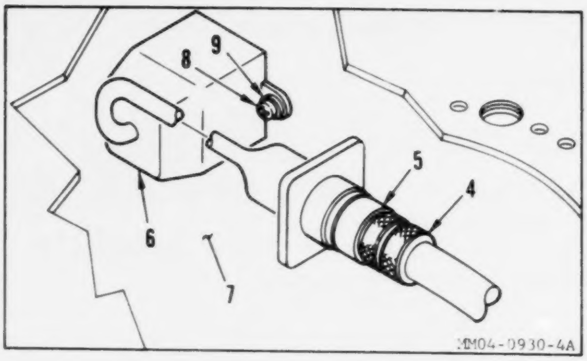
Wipe all removed and attaching parts with a clean rag.

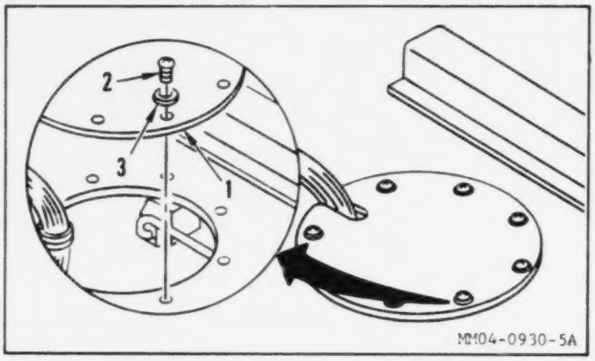
C. **INSPECTION**

Check all removed and attaching parts for damage (para 10-2-1).

GO TO NEXT PAGE

10-2-89. AFT FUEL CELL FUEL VALVE ISOLATION SWITCH REMOVAL/INSTALLATION (cont) 10-2-89





D. **INSTALLATION**

1. **Install switch (6) on frame (7).** Install two washers (9) and screws (8).

2. **Attach connector P1067 (4) to connector J1067 (5).**

3. **Inspect (TI).**

4. **Perform pressure refueling/defueling operational check** (TM 55-1520-238-T).

5. **Install cover (1).**

   a. Aline cover (1) with mounting holes in transmission deck.

   b. Lubricate seven new packings with retainers. Use petrolatum (E16).

   c. Install seven packings with retainers (3) and screws (2).

6. **Apply sealant to seal** (TM 55-1500-204-25/1) **to cover (1).** Use sealant (E10).

7. **Install utility hydraulic accumulator** (para 7-4-21).

8. **Install catwalk as required** (para 2-3-10).

9. **Secure access doors T250L, T250R, T290L, T290R and L325** (para 2-2-2).

END OF TASK

10-2-90. CPG FUEL PANEL TRANSFER SWITCH REPLACEMENT (AVIM) 10-2-90

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Soldering Iron, Electric	3439-00-853-8760

Materials/Parts:

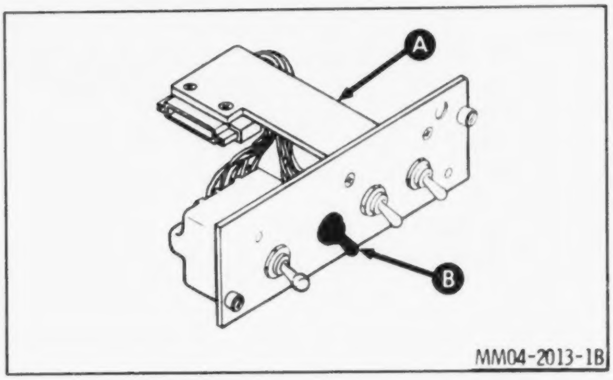
(E32)	Cloth, Lint-Free
(E50)	Solder

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1500-323-24



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10-2-90. CPG FUEL PANEL TRANSFER SWITCH REPLACEMENT (AVIM) (cont) 10-2-90

A. REMOVAL

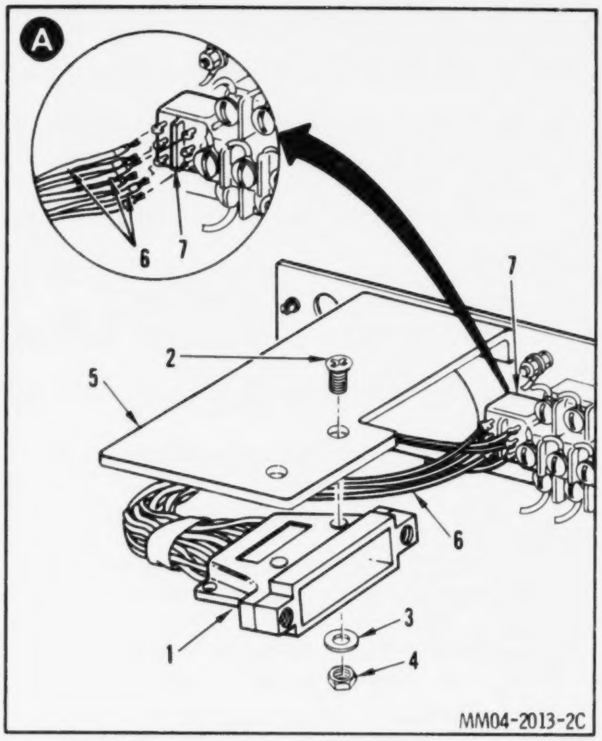
1. **Remove connector (1).** Remove two screws (2), washers (3), and nuts (4) that hold connector (1) to mounting bracket (5).

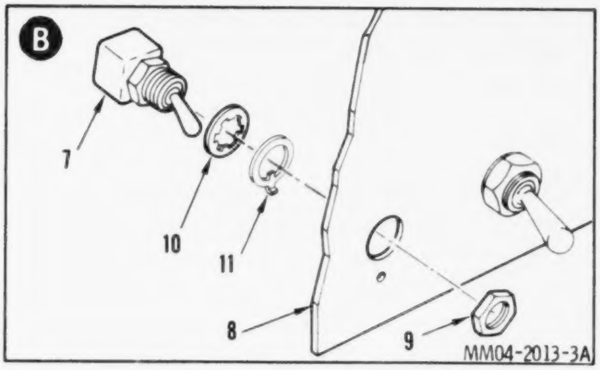
WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Remove six wires (6) from CPG fuel transfer switch (7).**
   a. Identify six wires (6).
   b. Desolder six wires (6) from switch (7). Use soldering iron (TM 55-1500-323-24).

3. **Remove switch (7) from support panel (8).**
   a. Remove nut (9).
   b. Pull switch (7), lock washer (10), and tab washer (11) from back of panel (8).





B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check wires for damaged connections, cuts, and chafing** (para 10-2-1).

2. **Check panel for cracks and damaged hardware.** None allowed.

GO TO NEXT PAGE

10-2-90. CPG FUEL PANEL TRANSFER SWITCH REPLACEMENT (AVIM) (cont) 10-2-90

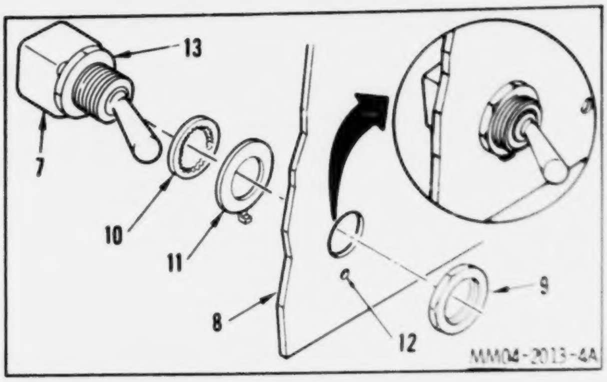
D. INSTALLATION

1. **Install switch (7) on panel (8).**

   a. Position switch (7) through lock washer (10), tab washer (11) and panel (8) so tab washer (11) seats in locating hole (12).

   b. Adjust length of switch (7) through panel (8). Use adjustment nut (13).

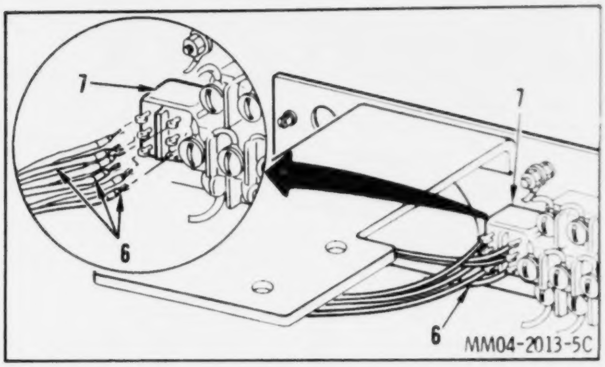
   c. Install nut (9).



WARNING

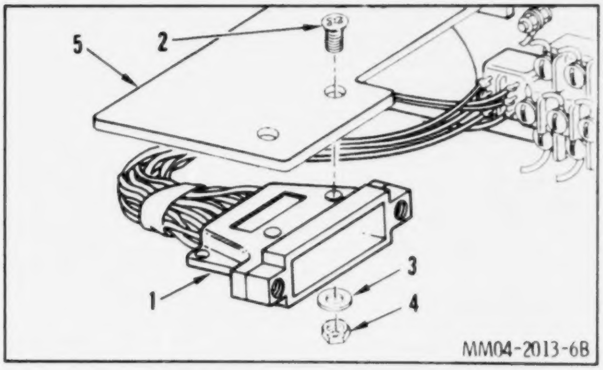
Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Attach six identified wires (6) to switch (7).** Use solder (E50) and soldering iron (TM 55-1500-323-24).



3. **Inspect (TI).**

4. **Install connector (1) on bracket (5).** Install two screws (2), washers (3), and nuts (4).



END OF TASK

10-2-91. CPG FUEL PANEL EDGE-LIGHTED PANEL REPLACEMENT 10-2-91

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer	5180-00-323-4915

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

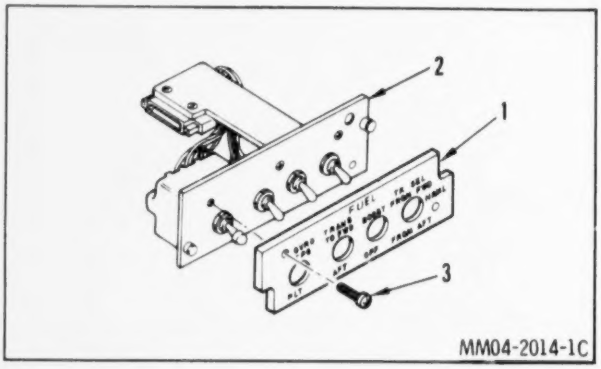
TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-95	CPG fuel panel removed

A. **REMOVAL**

Remove fuel panel edge lighted panel (1) from support panel (2). Remove two screws (3).



MM04-2014-1C

B. **CLEANING**

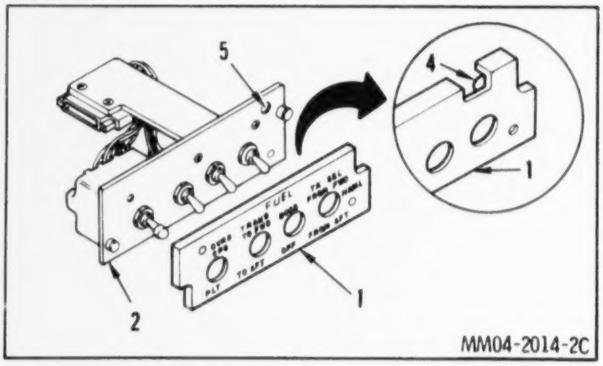
Wipe panels with a clean lint-free cloth (E32).

C. **INSPECTION**

1. **Check wires for damaged connections, cuts, and wear** (para 10-2-1).
2. **Check panels for dents, cracks, and damaged hardware** (para 10-2-1).

D. **INSTALLATION**

1. **Install panel (1) on panel (2).**
   - a. Position panel (1) so power connector (4) on panel (1) connects to connector (5) on support panel (2).



MM04-2014-2C

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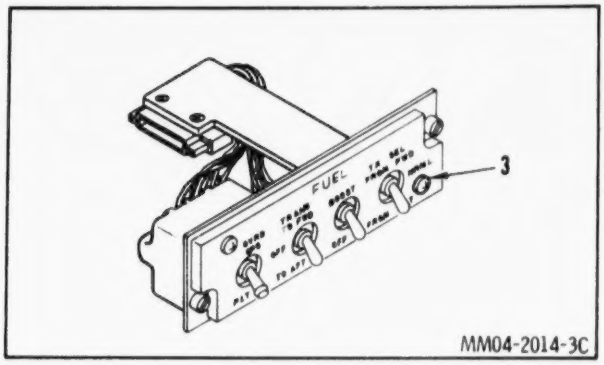
10-2-91. CPG FUEL PANEL EDGE-LIGHTED PANEL REPLACEMENT (cont) 10-2-91



MM04-2014-3C

b. Install two screws (3).

2. **Inspect (TI).**

3. **Install CPG fuel panel** (para 10-2-93).

4. **Perform CPG edge-light operational check** (TM 55-1520-238-T).

END OF TASK

10-2-92. CPG FUEL PANEL PILOT OVERRIDE SWITCH REPLACEMENT (AVIM) 10-2-92

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915

Materials/Parts:

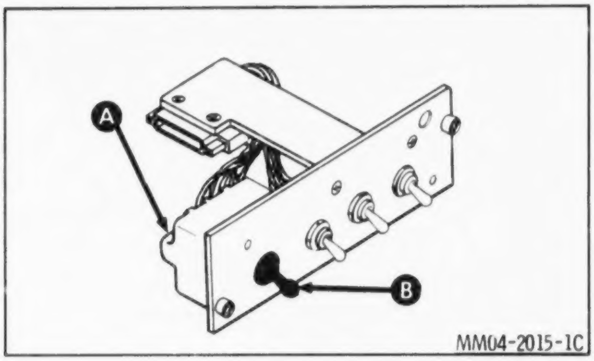
(E32) Cloth, Lint-Free

Personnel Required:

68F10 Aircraft Electrician
66R30 Inspector/Supervisor

Equipment Conditions:

Ref	Condition
10-2-91	CPG fuel panel edge lighted panel removed



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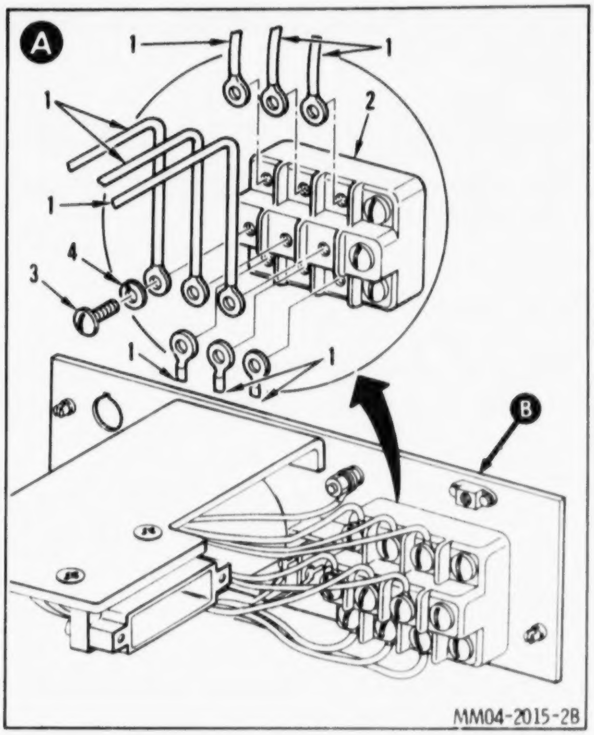
10-2-92. CPG FUEL PANEL PILOT OVERRIDE SWITCH REPLACEMENT (AVIM) (cont)

A. REMOVAL

1. **Detach nine wires (1) from pilot override switch (2).**

   a. Identify nine wires (1).

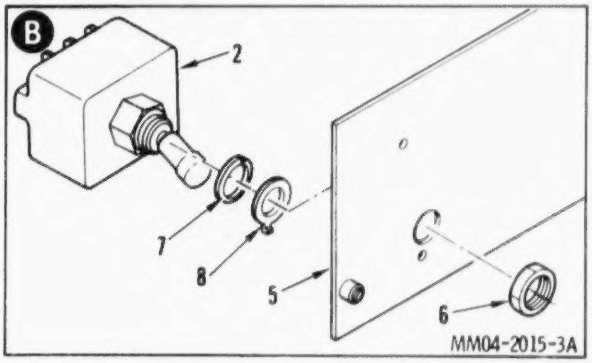
   b. Remove nine screws (3) and lock washers (4).



2. **Remove switch (2) from support panel (5).**

   a. Remove nut (6).

   b. Pull switch (2), lock washer (7), and tab washer (8) from back of panel (5).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

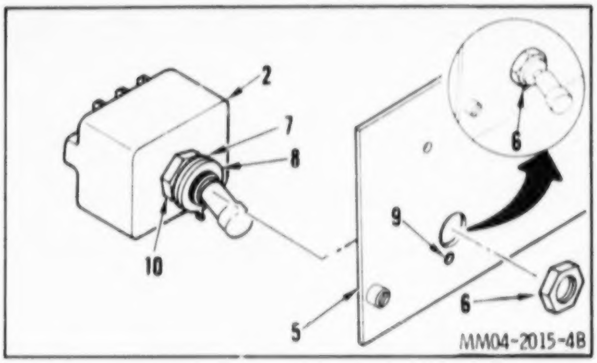
1. **Check wires for damaged connections, cuts, and wear** (para 10-2-1).

2. **Check panel for cracks, dents, and damaged hardware** (para 10-2-1).

GO TO NEXT PAGE

10-2-92. CPG FUEL PANEL PILOT OVERRIDE SWITCH REPLACEMENT (AVIM) (cont) 10-2-92

D. INSTALLATION

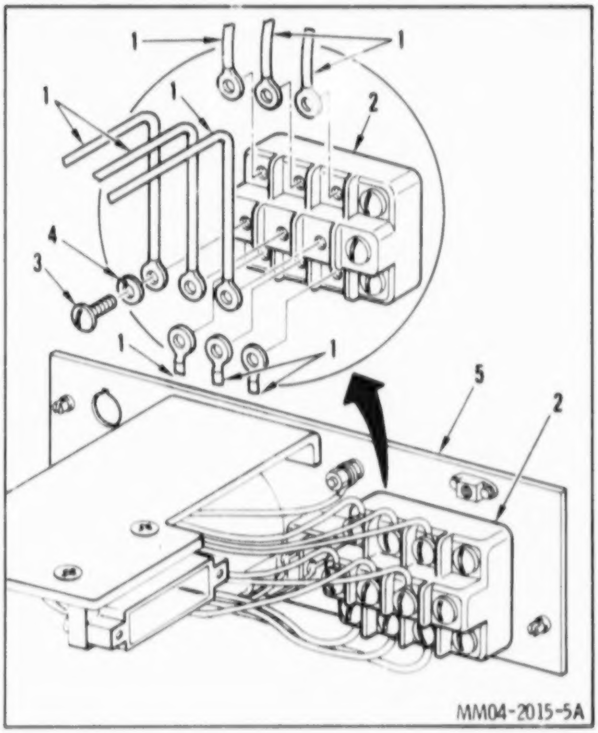


1. **Install switch (2) in panel (5).**

   a. Position switch (2) through lock washer (7), tab washer (8), and panel (5) so tab washer (8) seats in locating hole (9).

   b. Adjust length of switch (2) through panel (5). Use adjustment nut (10).

   c. Install nut (6).



2. **Attach nine identified wires (1) to switch (2).**

   a. Put nine lock washers (4) on nine screws (3).

   b. Put nine screws (3) through terminals on nine wires (1) into switch (2). Tighten screws.

3. **Inspect (TI).**

4. **Install CPG fuel panel edge lighted panel** (para 10-2-91).

END OF TASK

10-2-93. CPG FUEL PANEL TANK SELECT SWITCH REPLACEMENT (AVIM) 10-2-93

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Soldering Iron, Electric	3439-00-853-8760

Materials/Parts:

(E32)	Cloth, Lint-Free
(E50)	Solder

Personnel Required:

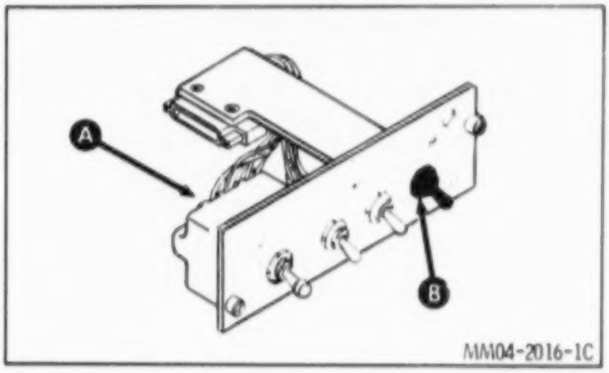
68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1500-323-24

Equipment Conditions:

Ref	Condition
10-2-91	CPG fuel panel edge lighted panel removed



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10-2-93. CPG FUEL PANEL TANK SELECT SWITCH REPLACEMENT (AVIM) (cont) 10-2-93

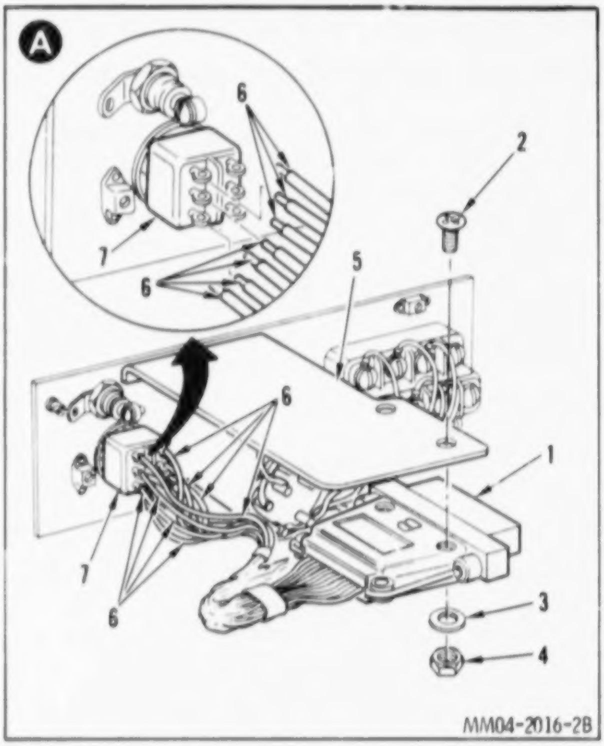
A. REMOVAL

1. **Remove connector (1).** Remove two screws (2), two washers (3), and two nuts (4) attaching connector (1) to mounting bracket (5).

WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Detach seven wires (6) from CPG tank select switch (7).**
   a. Identify seven wires (6).
   b. Desolder seven wires (6). Use soldering iron (TM 55-1500-323-24).
3. **Remove switch (7) from support panel (8).**
   a. Remove nut (9).
   b. Pull switch (7), lock washer (10), and tab washer (11) from back of panel (8).



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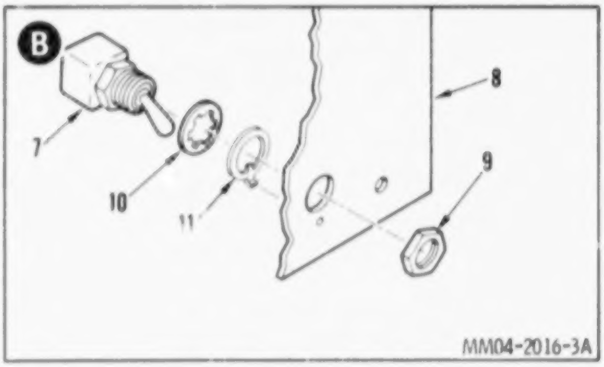


MM04-2016-3A

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check wires for damaged connections, cuts, and wear** (para 10-2-1).
2. **Check connector, panel and switch for nicks, cracks, damaged threads, and hardware** (para 10-2-1).

GO TO NEXT PAGE

CPG FUEL PANEL TANK SELECT SWITCH REPLACEMENT (AVIM) (cont) 10-2-93

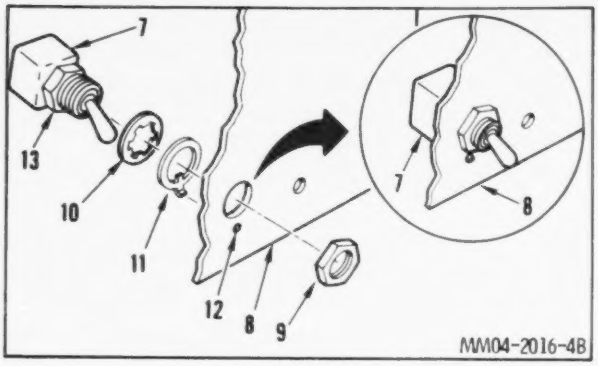
LLATION

ll switch (7) on panel (8).

sition switch (7) through lock sher (10), tab washer (11), and nel (8) so tab washer (11) ats in locating hole (12).

just length of switch (7) rough panel (8) with adjustment t (13).

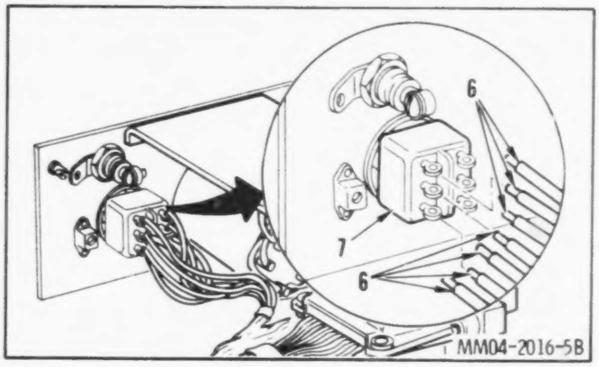
stall nut (9).



MM04-2016-4B

WARNING

ring iron can cause severe to personnel and start . Observe all safety utions when using soldering If injury occurs, seek al aid.



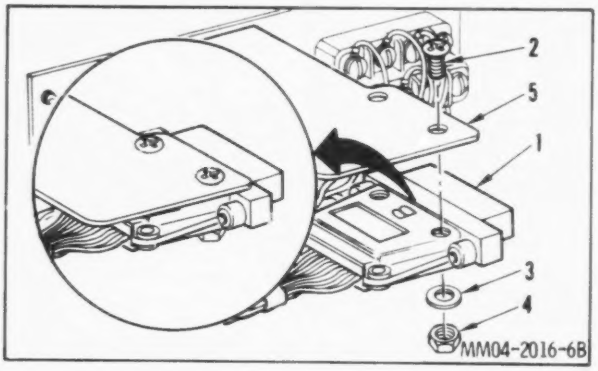
MM04-2016-5B

seven identified wires (6) to (7). Use solder (E50) and ring iron (TM 55-1500-323-24).

t (TI).

ll connector (1) on mounting et (5). Install two screws (2), s (3), and nuts (4).

l CPG fuel panel edge ed panel (para 10-2-91).



MM04-2016-6B

10-2-94. CPG FUEL PANEL BOOST PUMP SWITCH REPLACEMENT (AVIM) 10-2-94

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Soldering Iron, Electric	3439-00-853-8760

Materials/Parts:

(E32)	Cloth, Lint-Free
(E50)	Solder

Personnel Required:

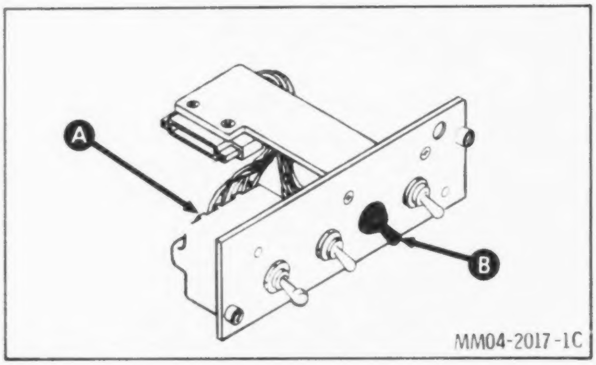
68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1500-323-24

Equipment Conditions:

Ref	Condition
10-2-91	CPG fuel panel edge lighted panel removed



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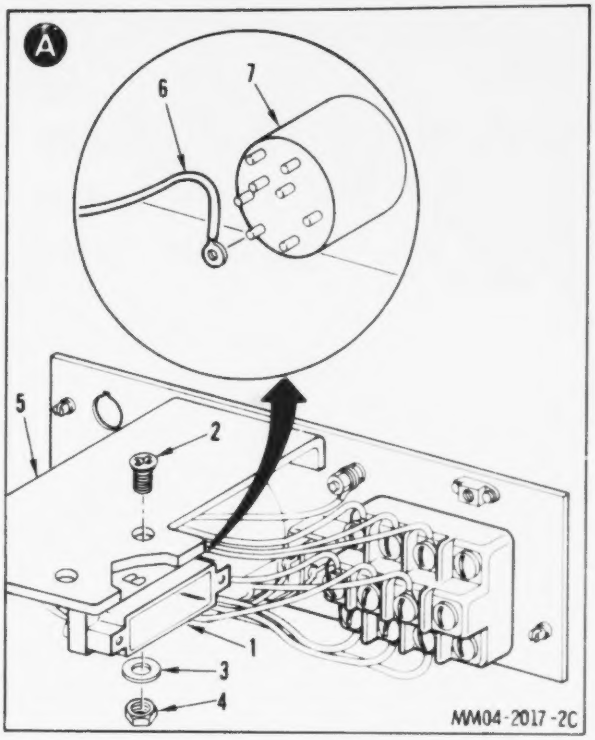
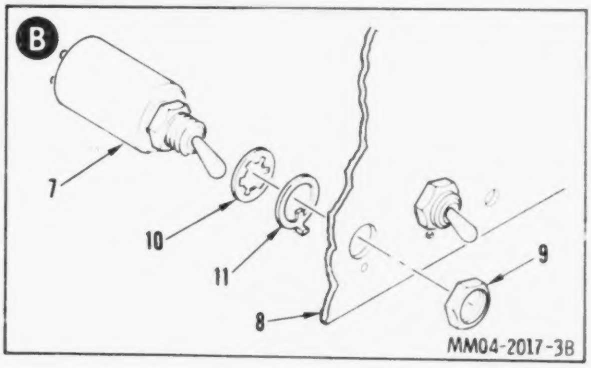
10-2-94. CPG FUEL PANEL BOOST PUMP SWITCH REPLACEMENT (AVIM) (cont) 10-2-94





A. REMOVAL

1. **Remove connector (1).** Remove two screws (2), washers (3), and nuts (4) attaching connector (1) to mounting bracket (5).

WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Detach seven wires (6) from CPG boost pump switch (7).**
   a. Identify seven wires (6).
   b. Desolder seven wires (6). Use soldering iron (TM 55-1500-323-24).
3. **Remove switch (7) from support panel (8).**
   a. Remove nut (9).
   b. Pull switch (7), lock washer (10), and tab washer (11) from back of panel (8).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check connector, panel, and switch for cracks, damaged threads, and hardware** (para 10-2-1).
2. **Check, panel, connector and switch for nicks, cracks, and damaged threads** (para 10-2-1).

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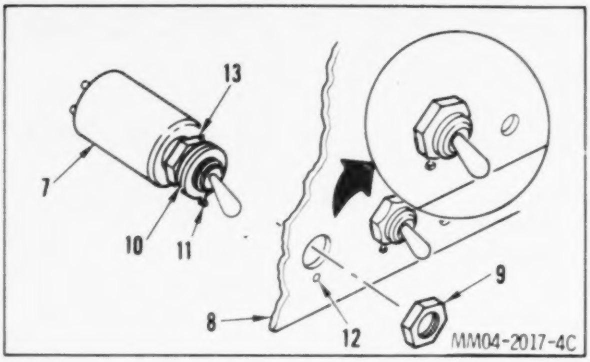
10-2-94. CPG FUEL PANEL BOOST PUMP SWITCH REPLACEMENT (AVIM) (cont) 10-2-94

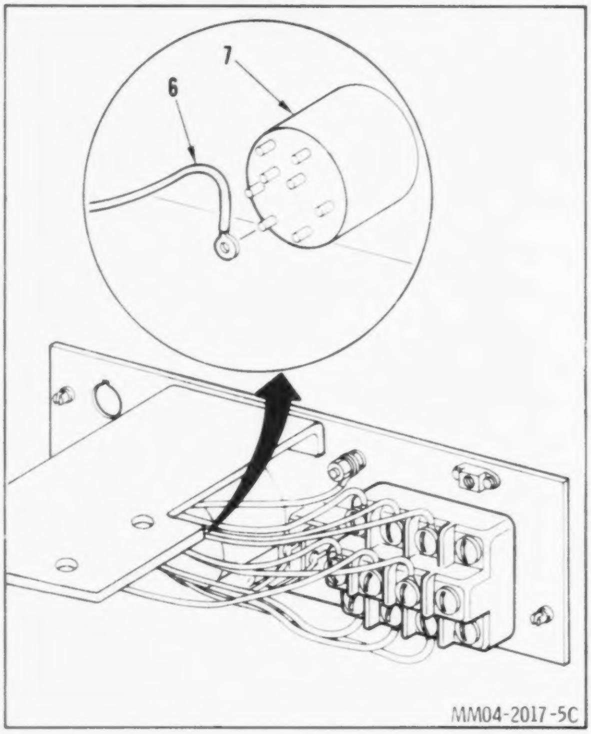
D. INSTALLATION



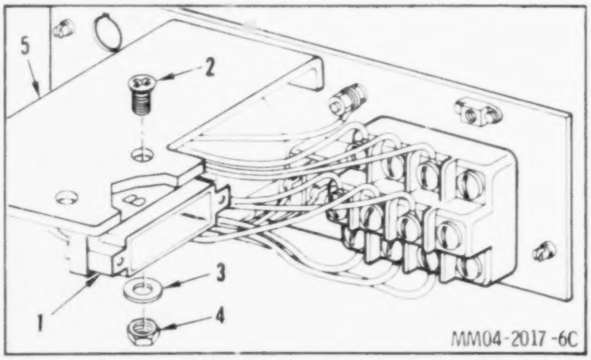
1. **Install switch (7) in support panel (8).**
   1. Position switch (7) through lock washer (10), tab washer (11) and panel (8) so tab washer (11) seats in locator hole (12).
   2. Adjust length of switch (7) through panel (8). Use adjustment nut (13).
   3. Install nut (9).

WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.



2. **Attach seven identified wires (6) on switch (7).** Use solder (E50) and soldering iron (TM 55-1500-323-24).



3. **Inspect** (TI).
4. **Install connector (1) on mounting bracket (5).** Install two screws (2), washers (3), and nuts (4).
5. **Install CPG fuel panel edge lighted panel** (para 10-2-91).

END OF TASK

10-2-95. CPG FUEL PANEL REMOVAL/INSTALLATION 10-2-95

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

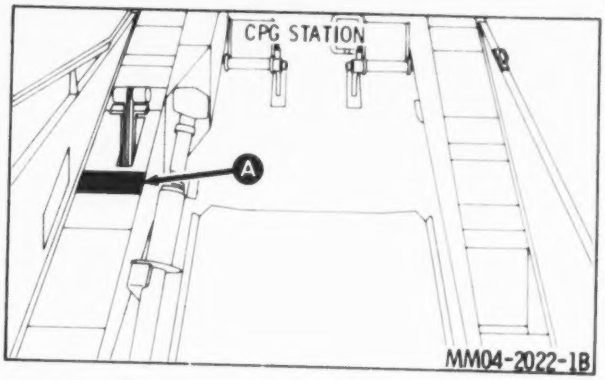
TM 55-1520-238-T

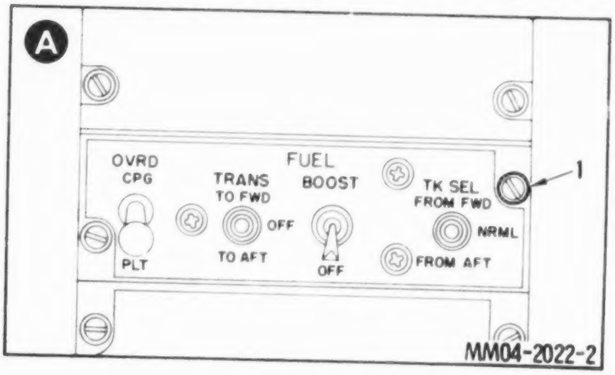
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed

A. **REMOVAL**

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open FUEL XFEED, FUEL XFER, and FUEL BST circuit breakers on pilot center circuit breaker panel.**
3. **Enter CPG station** (para 1-7-1). **Observe all safety precautions.**
4. **Unlock two Camloc fasteners (1).**


CPG STATION
A
MM04-2022-1B


A
OVRD
CPG
PLT
FUEL
TRANS
TO FWD
OFF
TO AFT
BOOST
OFF
TK SEL
FROM FWD
NRML
FROM AFT
1
MM04-2022-2

GO TO NEXT PAGE

10-2-95. CPG FUEL PANEL REMOVAL/INSTALLATION (cont) 10-2-95

5. Detach connector (2).

   a. Lift panel (3) out of console (4).

   b. Detach connector P191 (2) from connector A179J1 (5).

B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

1. Check panel for damaged switches, cracks, chips, dents, and missing hardware (para 10-2-1).

2. Check wire harness and insulating sleeve for cuts, cracks, chafing, and broken or missing wire ties (para 10-2-1).

D. INSTALLATION

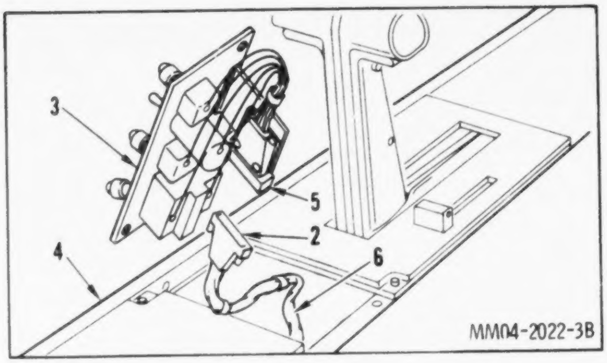
1. Attach connector P191 (2) to connector A179J1 (5).

2. Inspect (TI).

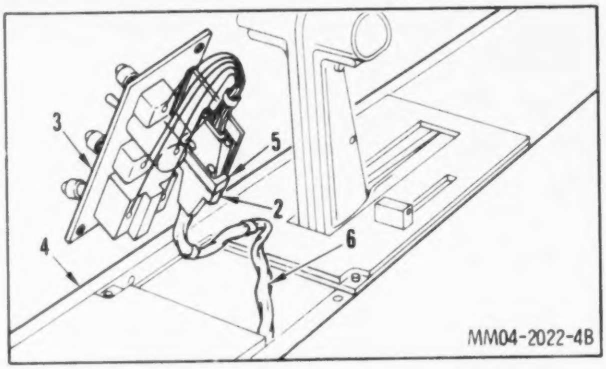
3. Install CPG fuel panel (3) in console (4).

4. Lock two Camloc fasteners (1).

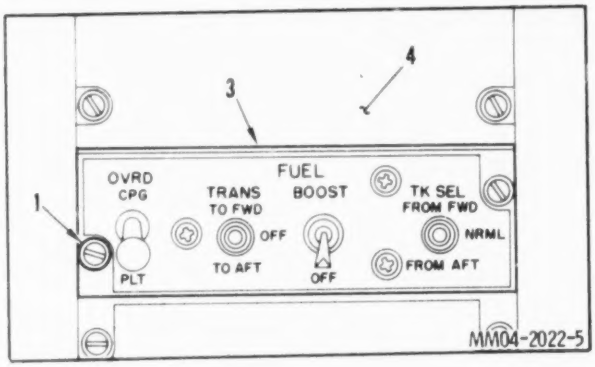
5. Perform crossfeed/boost system operational check (TM 55-1520-238-T).



MM04-2022-3B



MM04-2022-4B


4
3
1
FUEL
OVRD
CPG
PLT
TRANS
TO FWD
OFF
TO AFT
BOOST
OFF
TK SEL
FROM FWD
NRML
FROM AFT
MM04-2022-5

END OF TASK

10-2-96. PILOT FUEL PANEL REMOVAL/INSTALLATION 10-2-96

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

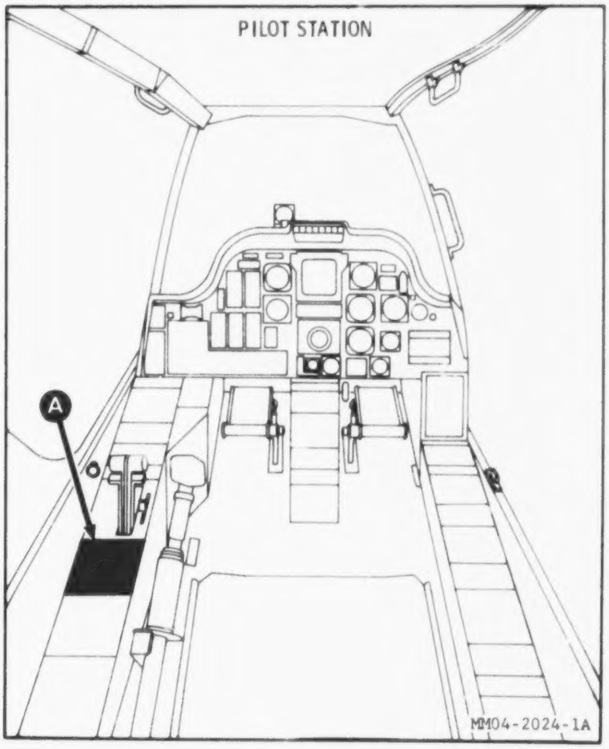
Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open FUEL BST, FUEL TRANS, and FUEL XFEED circuit breakers on pilot center circuit breaker panel.**



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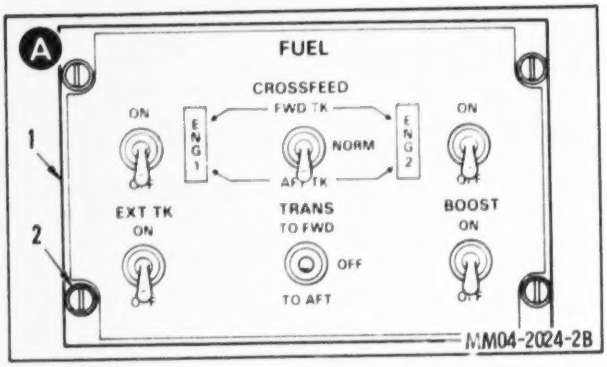
10-2-96. PILOT FUEL PANEL REMOVAL/INSTALLATION (cont) 10-2-96

3. **Remove pilot fuel panel (1).** Unlock four camloc fasteners (2).


A
FUEL
CROSSFEED
FWD TK
ON
ENG 1
NORM
ENG 2
ON
AFT TK
OFF
OFF
1
2
EXT TK
ON
TRANS
TO FWD
BOOST
ON
OFF
TO AFT
OFF
OFF

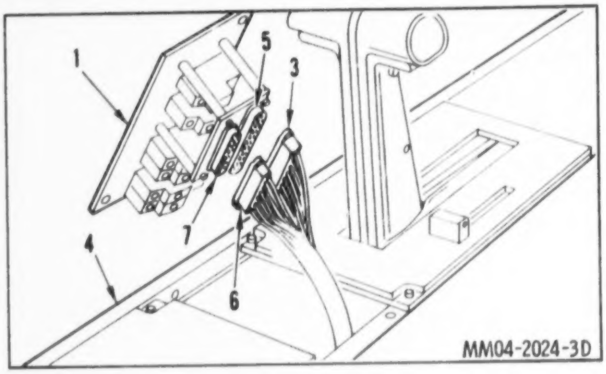
MM04-2024-2B

4. **Detach connectors (3).**

   a. Lift panel (1) out of console (4).

   b. Detach connector P174 (3) from connector A131J1 (5).

   c. Detach connector P179 (6) from connector A131J2 (7).



MM04-2024-3D

B. **CLEANING**

Wipe panel and connector with a clean lint-free cloth (E32).

C. **INSPECTION**

Check panel for damaged switches, cracks, chips, and missing hardware (para 10-2-1).

D. **INSTALLATION**

1. **Attach connector P174 (3) to connector A131J1 (5) and connector P179 (6) to connector A131J2 (7).**

2. **Inspect** (TI).

3. **Install panel (1) in left console (4).** Lock four camloc fasteners (2).

4. **Perform crossfeed/boost system operational check** (TM 55-1520-238-T).

END OF TASK

10-2-97. PILOT FUEL EDGE-LIGHTED PANEL REMOVAL/INSTALLATION 10-2-97

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915

Personnel Required:

68F10 Aircraft Electrician
66R30 Inspector/Supervisor

References:

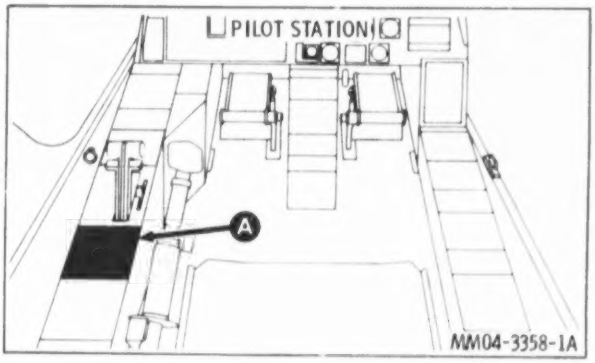
TM 55-1520-238-T

Equipment Conditions:

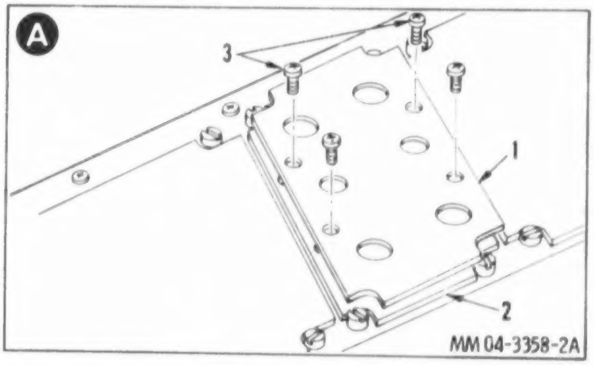
Ref	Condition
1-7-2	Helicopter safed

A. **REMOVAL**

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**



2. **Remove edge-lighted panel (1) from pilot fuel panel (2).** Remove four screws (3).



B. **CLEANING**

Wipe panels with a clean dry rag.

GO TO NEXT PAGE

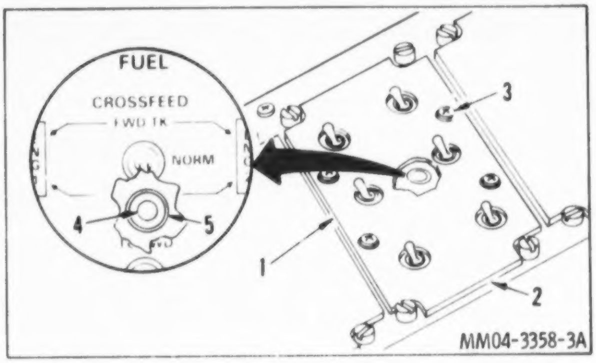
10-2-97. PILOT FUEL EDGE-LIGHTED PANEL REMOVAL/INSTALLATION (cont) 10-2-97

C. INSPECTION

Check panels for dents, cracks, and damaged hardware. None allowed.

D. INSTALLATION

1. **Install panel (1) on panel (2).**
   a. Position panel (1) so power connector XDS1 (4) on panel (1) attaches to connector DS1 (5) on panel (2).
   b. Install four screws (3).
2. **Inspect (TI).**
3. **Perform** pilot edge-lighted panel operational check (TM 55-1520-238-T).



END OF TASK

10-2-98. PILOT FUEL PANEL CROSSFEED SWITCH REPLACEMENT (AVIM) 10-2-98

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Soldering Iron, Electric	3439-00-853-8760

Materials/Parts:

(E50) Solder

Personnel Required:

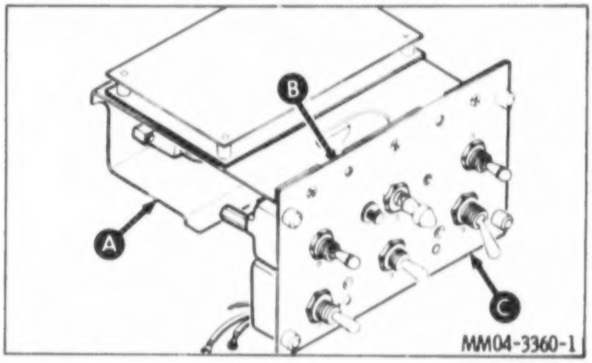
68F10 Aircraft Electrician
66R30 Inspector/Supervisor

References:

TM 55-1500-323-24

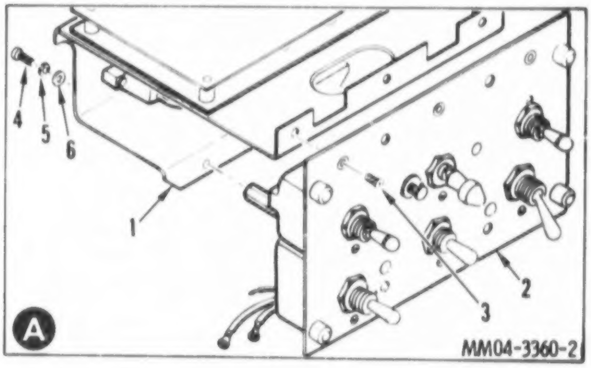
Equipment Conditions:

Ref	Condition
10-2-97	Pilot fuel edge-lighted panel removed



A. REMOVAL

1. **Remove bracket (1) from fuel panel (2).**
   a. Remove three screws (3) from top front of panel (2).
   b. Remove two screws (4), lock washers (5), and flat washers (6).
   c. Move bracket (1) gently to gain access to remove switches.



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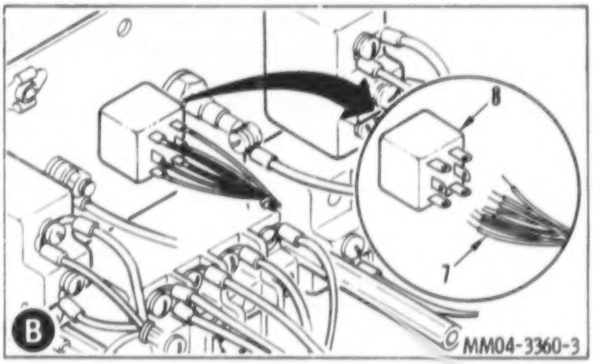
10-2-98. PILOT FUEL PANEL CROSSFEED SWITCH REPLACEMENT (AVIM) (cont) 10-2-98

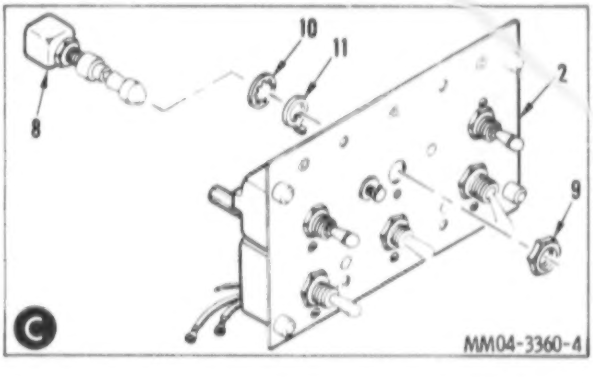
WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Remove nine wires (7) from fuel crossfeed switch (8).**
   a. Identify nine wires (7).
   b. Detach nine wires (7) from switch (8). Use soldering iron (TM 55-1500-323-24).



3. **Remove fuel crossfeed switch (8) from fuel panel (2).** Remove nut (9), lock washer (10), and lockring (11).



B. **CLEANING**

Wipe all removed and attaching parts with a clean rag.

C. **INSPECTION**

1. **Check wires for damaged connections, cuts, and wear.** None allowed.
2. **Check panel for cracks, dents, and damaged hardware.** None allowed.

GO TO NEXT PAGE

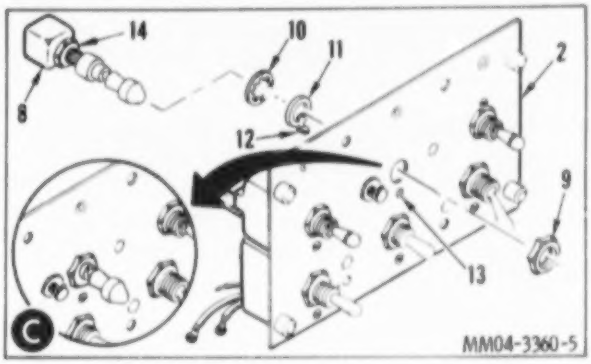
10-2-98. PILOT FUEL PANEL CROSSFEED SWITCH REPLACEMENT (AVIM) (cont) 10-2-98

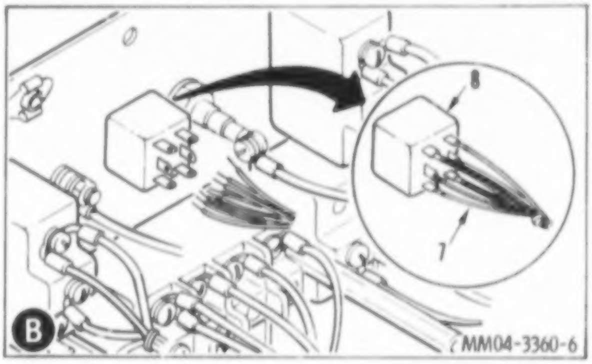
D. INSTALLATION

1. **Install fuel crossfeed switch (8) on fuel panel (2).**

   a. Insert switch (8) with lock washer (10) and lockring (11) in panel (2) so tab (12) on lockring (11) seats in locator hole (13).

   b. Adjust length of switch (8) through panel (2) with adjustment nut (14) so one to four threads of switch (8) extend past nut (9).





WARNING

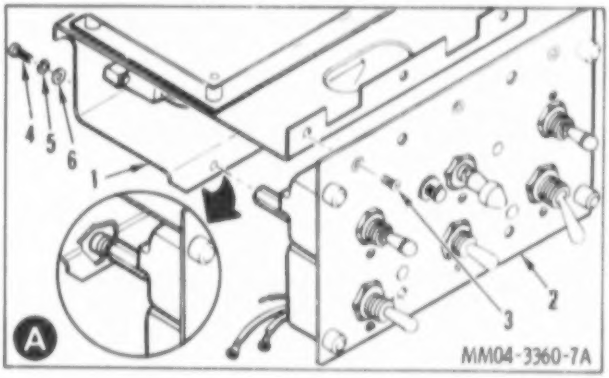
Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Attach nine wires (7) to fuel crossfeed switch (8).** Use solder (E50) and soldering iron (TM 55-1500-323-24).

3. **Install bracket (1) on fuel panel (2).**

   a. Install two flat washers (6), lock washers (5), and screws (4).

   b. Install three screws (3).



4. **Inspect (TI).**

5. **Install pilot fuel panel edge-lighted panel** (para 10-2-97).

END OF TASK

10-2-99. PILOT FUEL PANEL FUEL BOOST SWITCH REPLACEMENT (AVIM) 10-2-99

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915
Soldering Iron, Electric	3439-00-853-8760

Materials/Parts:

(E50) Solder

Personnel Required:

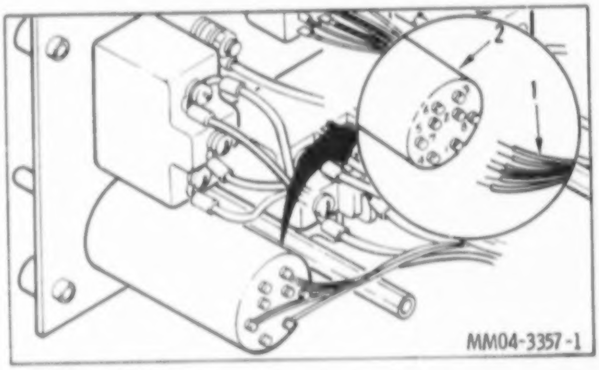
68F10	Aircraft Electrician
66R30	Inspector/Supervisor

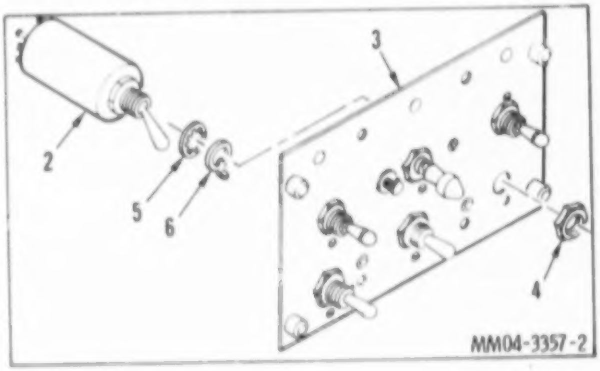
References:

TM 55-1500-323-24

Equipment Conditions:

Ref	Condition
10-2-97	Pilot fuel edge-lighted panel removed





WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

A. **REMOVAL**

1. **Detach six wires (1) from fuel boost switch (2).**

    a. Identify six wires (1).

    b. Detach six wires (1). Use soldering iron (TM 55-1500-323-24).

2. **Remove fuel boost switch (2) from fuel panel (3).** Remove nut (4), lock washer (5), and lockring (6).

GO TO NEXT PAGE

removed and attaching parts
ean rag.

s for damaged connections,
wear. None allowed.

el for cracks, dents, and
rdware. None allowed.

ON

el boost switch (2) on
(3).

switch (2) with lock
(5) and lockring (6) in
3) so that tab (7) on
g (6) seats in locator
).

length of switch (2)
panel (3) with adjustment
so that one to four threads
ch (2) extend past nut (4).

nut (4).

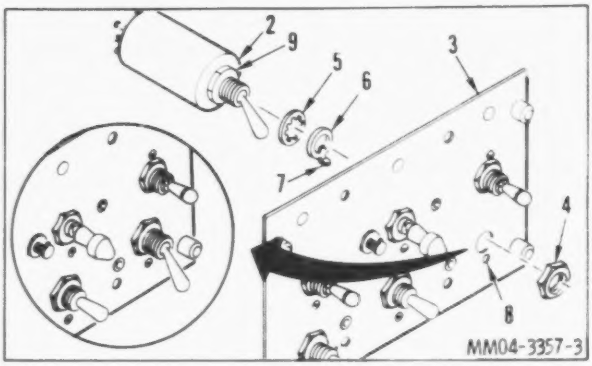
WARNING

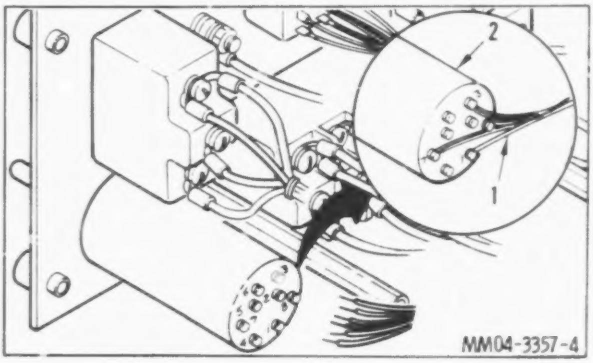
iron can cause severe
ersonnel and start
oserve all safety
s when using soldering
injury occurs, seek
d.

wires (1) to fuel boost
. Use solder (E50) and
iron (TM 55-1520-323-24).

I).

ilot fuel edge-lighted
a 10-2-97).





10-2-100. PILOT FUEL PANEL SWITCH REPLACEMENT (AVIM) 10-2-100

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer's	5180-00-323-4915

Personnel Required:

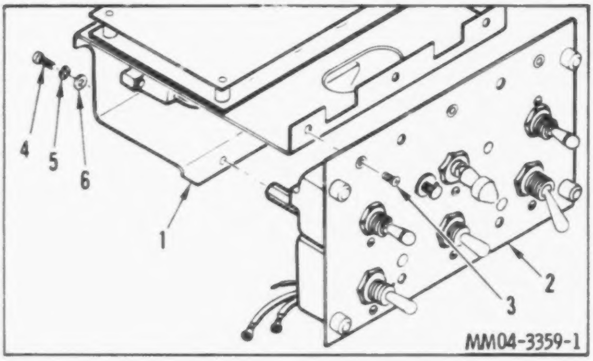
66F10	Aircraft Electrician
66R30	Inspector/Supervisor

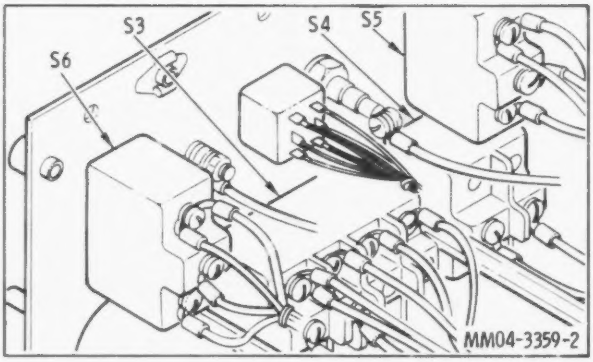
References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
10-2-97	Pilot fuel edge-lighted panel removed





NOTE

This task is typical for replacement of pilot fuel panel switches S3, S4, S5 or S6. The number of terminals and number of wires attached to each switch may differ.

A. REMOVAL

1. **Remove bracket (1) from panel (2).**
   a. Remove three screws (3) from top front of panel (2).
   b. Remove two screws (4), lock washers (5), and flat washers (6).
   c. Move bracket (1) gently to gain access to switches.
2. **Identify switch.**

GO TO NEXT PAGE

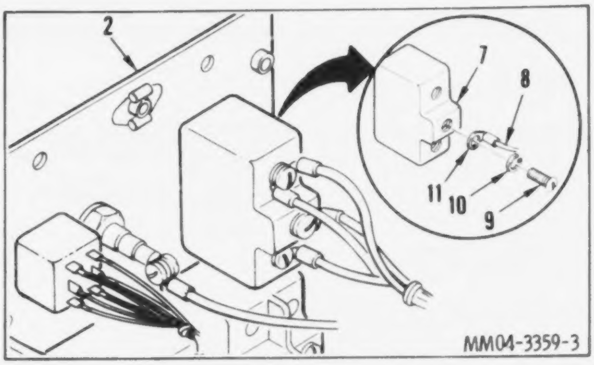
10-2-100. PILOT FUEL PANEL SWITCH REPLACEMENT (AVIM) (cont) 10-2-100

3. **Remove wires (8) from switch (7).**

   a. Identify wires (8).

   b. Remove three screws (9), three lock washers (10), and terminal lugs (11).

4. **Remove switch (7) from panel (2).** Remove nut (12), lock washer (13), and lockring (14).



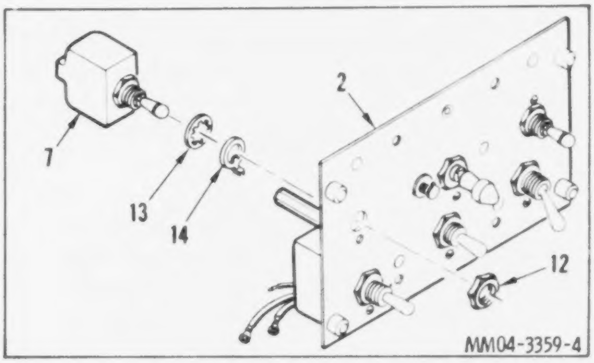
B. CLEANING

Wipe all removed and attaching parts with a clean rag.

C. INSPECTION

1. **Check wires for damaged connections, cuts, and wear.** None allowed.

2. **Check panel for cracks, dents, and damaged hardware.** None allowed.



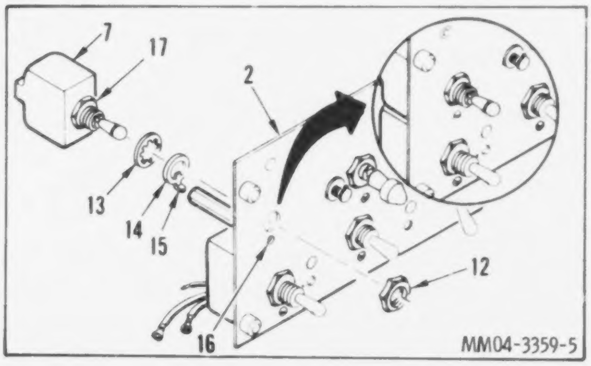
D. INSTALLATION

1. **Install switch (7) on panel (2).**

   a. Insert switch (7) with lock washer (13) and lockring (14) in panel (2) so tab (15) on lockring (14) seats in locator hole (16).

   b. Adjust length of switch (7) through panel (2) with adjustment nut (17) so one to four threads of switch (7) extend past nut (12).

   c. Install nut (12).



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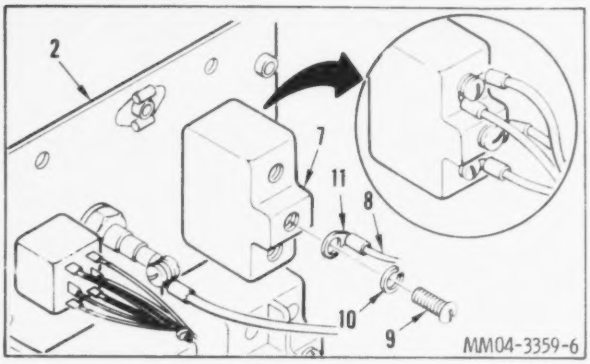
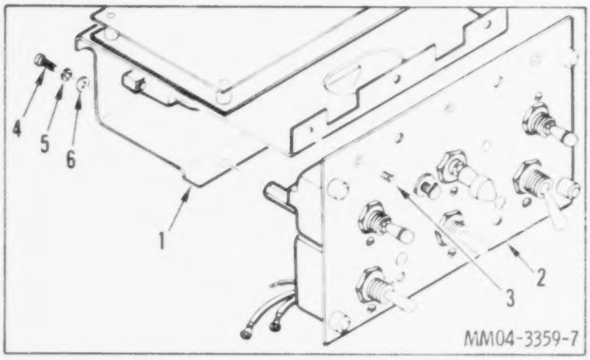
10-2-100. PILOT FUEL PANEL SWITCH REPLACEMENT (AVIM) (cont) 10-2-100

2. **Attach wires (8) to switch (7).** Install three screws (9) through three lock washers (10) and terminal lugs (11) into switch (7).
   a. Put a lock washer (10) on each of three screws (9).
   b. Put three screws (9) through three terminals (8) into switch (7). Tighten screws.



3. **Install bracket (1) on panel (2).**
   a. Install two screws (4) through two flat washers (6) and lock washers (5) into bracket (1).
   b. Install three screws (3).
4. **Inspect (TI).**
5. **Install pilot fuel edge-lighted panel** (para 10-2-97).



END OF TASK

10-2-101. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-101

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
	Packing with Retainer (76)
(E16)	Petrolatum
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed
10-2-18	Aft fuel cell upper vent tube removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**

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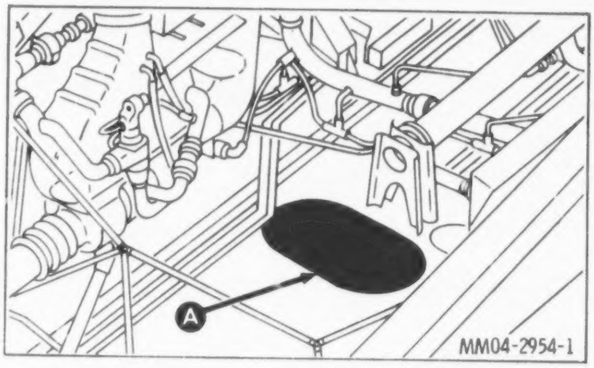
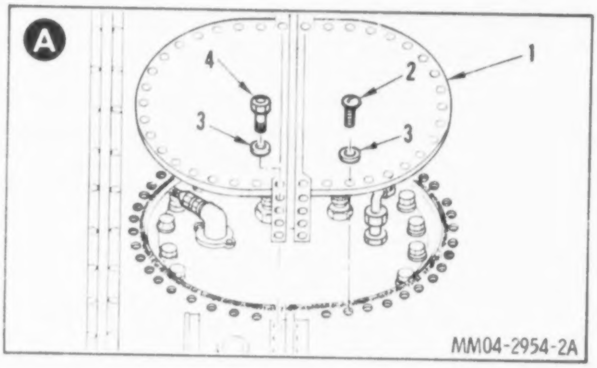
10-2-101. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-101





WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. **Remove aft fuel cell fuel access panel (1).**

    a. Remove sealing compound from around panel (1).

    b. Remove 56 screws (2) and packings with retainers (3). Discard packings.

    c. Remove 20 bolts (4) and packings with retainers (3). Discard packings.

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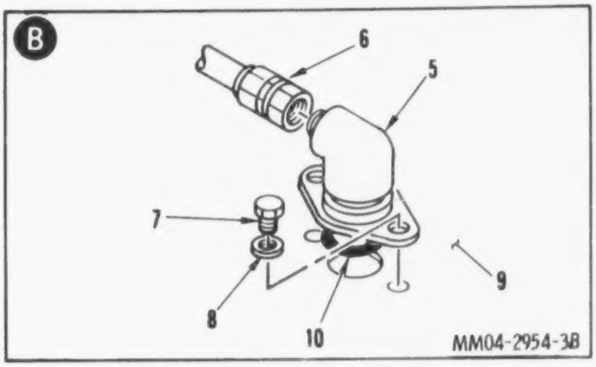
10-2-101. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION (cont)



5. Remove N_2 inert breakaway valve (5).

   a. Detach hose (6) from valve (5).

   b. Remove two bolts (7) and washers (8).

   c. Remove valve (5) from cover (9).

   d. Remove and discard packing (10).

B. CLEANING

1. **Clean valve, attaching hardware, and mounting surface of cover** (para 1-5-36).

2. **Clean sealing compound residue from access panel and mounting area on transmission deck** (para 1-5-36).

C. INSPECTION

1. **Check access panel for nicks, dents, and cracks** (para 10-2-1).

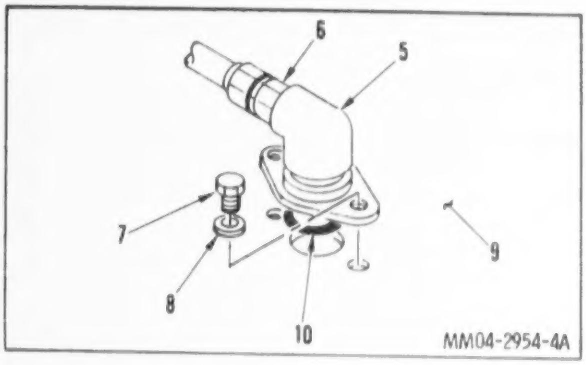
2. **Check valve for cracks, nicks, dents, and breaks** (para 10-2-1).

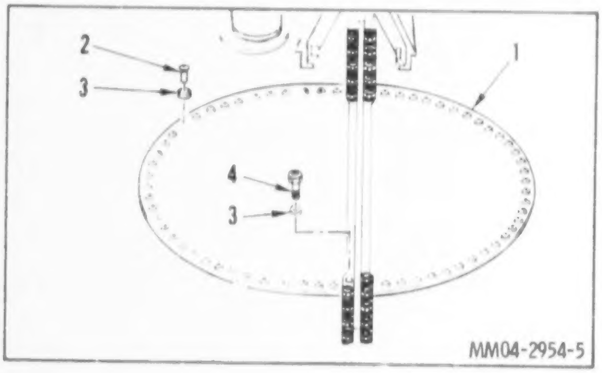
3. **Check valve for corrosion** (para 1-5-38).

GO TO NEXT PAGE

10-2-101. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-101

D. INSTALLATION





1. **Install valve (5) on cover (9).**
   - a. Lubricate new packing (10). Use petrolatum (E16).
   - b. Install packing (10) in mount end of valve (5).
   - c. Place valve (5) on cover (9) in position shown. Install two washers (8) and bolts (7).
   - d. Attach hose (6) to valve (5).
2. **Inspect (TI).**
3. **Install panel (1).**
   - a. Aline panel (1) with mounting holes in transmission deck.
   - b. Lubricate 76 new packings with retainers (3). Use petrolatum (E16).
   - c. Install 56 new packings with retainers (3) and screws (2).
   - d. Install 20 packings with retainers (3) and bolts (4).
4. **Apply sealing compound as fillet seal to panel (1)** (TM 55-1500-204-25/1). Use sealing compound (E124).
5. **Inspect (TI).**
6. **Install aft fuel cell upper vent tube** (para 10-2-18).
7. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).

END OF TASK

10-2-102. AFT FUEL CELL NITROGEN (N_2) INERT OUTLET ORIFICE REMOVAL/INSTALLATION 10-2-102

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Attachment 13/16, 3/8 Drive	

Materials/Parts:

	Washer
	Packing
	Packing with Retainer (77)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Acccess panel R200 removed
10-2-18	Aft fuel cell upper vent tube removed
10-2-2	Fuel system safety precautions observed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker in upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**

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10-2-102. AFT FUEL CELL NITROGEN (N_2) INERT OUTLET ORIFICE REMOVAL/INSTALLATION (cont) 10-2-102

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. **Remove aft fuel cell fuel access panel (1).**

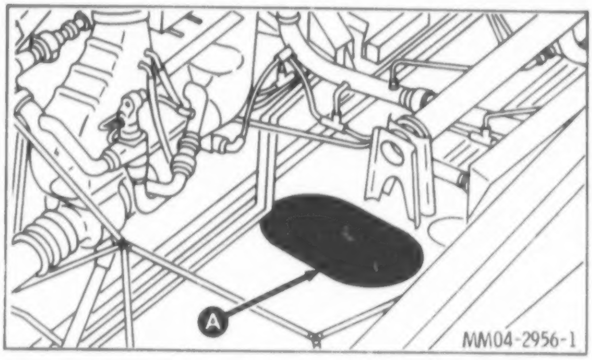
   a. Remove sealing compound from around panel (1).

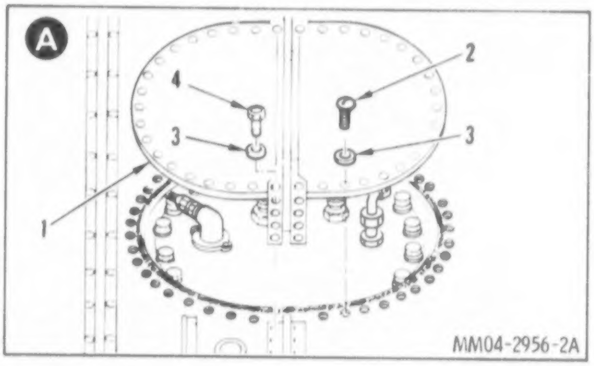
   b. Remove 56 screws (2) and packings with retainers (3). Discard packings.

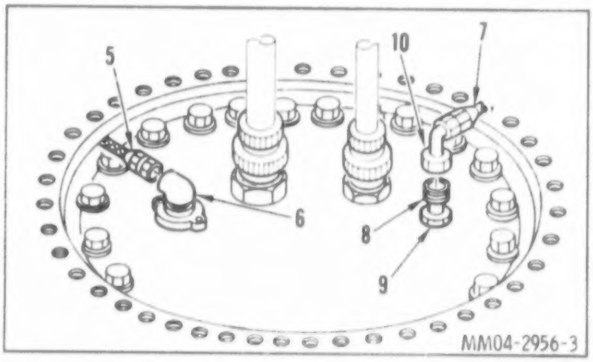
   c. Remove 20 bolts (4) and packings with retainers (3). Discard packings.

5. **Detach hose (5) from breakaway valve (6).**

6. **Detach hose (7) from orifice outlet union (8).** Hold retaining nut (9). Remove hose nut (10).







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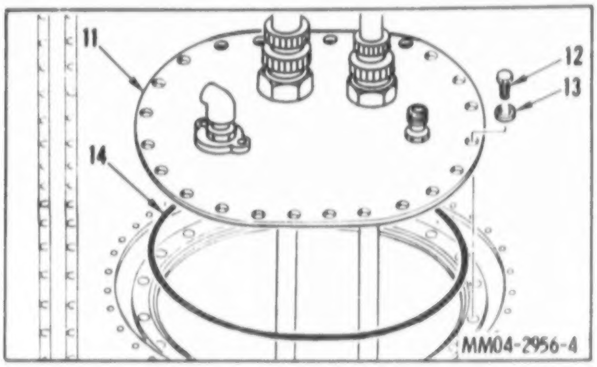
10-2-102. AFT FUEL CELL NITROGEN (N_2) INERT OUTLET ORIFICE REMOVAL/INSTALLATION (cont) 10-2-102



7. **Remove aft fuel cell access cover (11) from aft fuel cell.**

   a. Remove 24 bolts (12) and washers (13).

   b. Lift cover (11) from fuel cell.

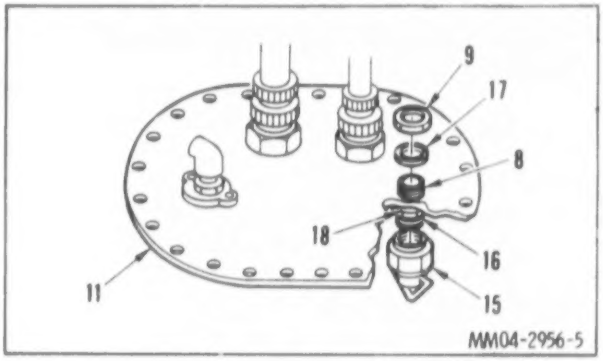
   c. Remove and discard cover packing (14).

8. **Remove N_2 inert orifice (15) from cover (11).**

   a. Hold retaining nut (9). Remove orifice (15).

   b. Hold nut (16) of union (8). Remove retaining nut (9) and washer (17). Discard washer (17).

   c. Remove union (8) and packing with retainer (18) from cover (11). Discard packing with retainer.



B. CLEANING

1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

2. **Clean sealing compound from access panel and mounting area on transmission deck** (para 1-5-36).

3. **Clean packing from around cover mounting holes for orifice union** (para 1-5-36).

C. INSPECTION

1. **Check access panel and access cover for nicks, dents, and cracks** (para 10-2-1).

2. **Check orifice and union for dents, cracks, and damaged threads** (para 10-2-1).

GO TO NEXT PAGE

10-2-102. AFT FUEL CELL NITROGEN (N_2) INERT OUTLET ORIFICE REMOVAL/INSTALLATION (cont) 10-2-102

D. INSTALLATION

1. **Install inert orifice (15).**

   a. Lubricate packing with retainer. Use petrolatum (E16).

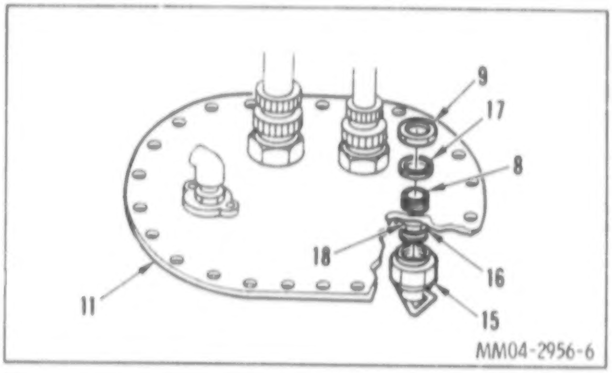
   b. Install packing with retainer (18) on union (8). Insert union (8) through mounting hole of cover (11) in position shown.

   c. Install new washer (17). Attach retaining nut (9) to union (8) on upper side of cover (11).

   d. Hold union nut (16). Tighten nut (9).

   e. Install orifice (15) to lower threads of union (8).

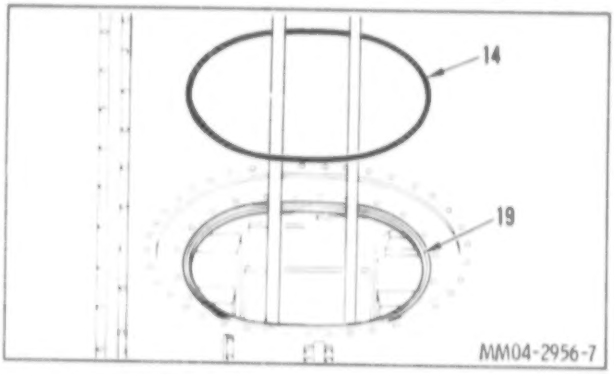
   f. Hold nut (16). Tighten orifice (15).



2. **Install fuel access cover packing (14).**

   a. Lubricate packing (14). Use petrolatum (E16).

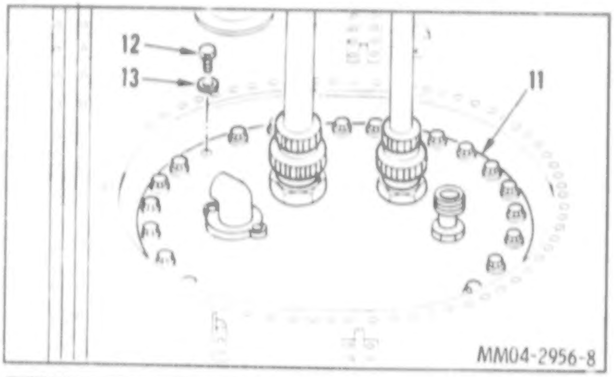
   b. Install packing (14) in fuel cell mounting ring (19).



3. **Install cover (11) on aft fuel cell.**

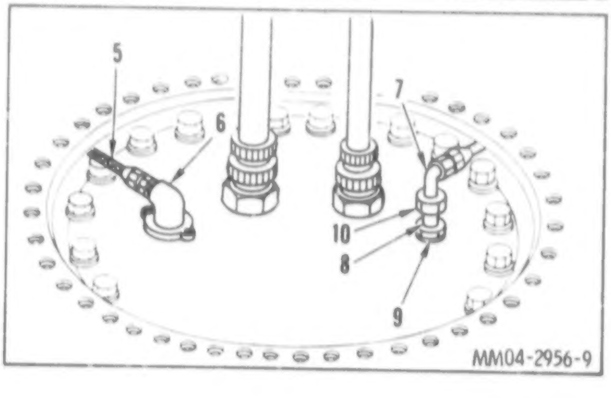
   a. Aline cover (11) with mounting holes over fuel cell.

   b. Install 24 washers (13) and bolts (12).



4. **Attach orifice outlet hose (7) to union (8).**

5. **Attach hose (5) to valve (6).**



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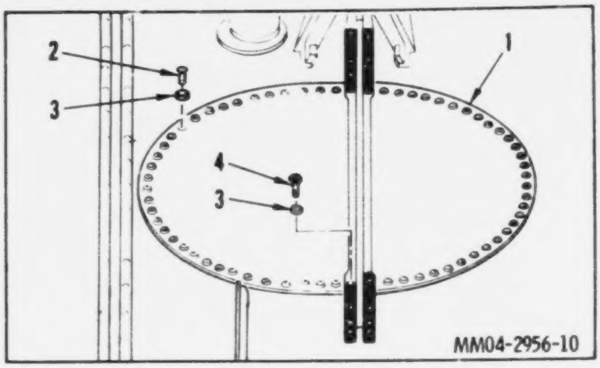
10-2-102. AFT FUEL CELL NITROGEN (N_2) INERT OUTLET ORIFICE REMOVAL/INSTALLATION (cont) 10-2-102



6. **Inspect (TI).**

7. **Install aft fuel cell access panel (1).**

   a. Aline panel (1) with mounting holes in transmission deck.

   b. Lubricate 76 new packings with retainers. Use petrolatum (E16).

   c. Install 56 new packings and retainers (3) and screws (2).

   d. Install 20 new packings and retainers (3) and bolts (4).

8. **Apply sealing compound as fillet seal** (TM 55-1500-204-25/1) **to panel (1).** Use sealing compound (E124).

9. **Inspect (TI).**

10. **Install aft fuel cell upper vent tube** (para 10-2-18).

11. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).

12. **Secure access panel R200** (para 2-2-2).

END OF TASK

10-2-103. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION 10-2-103

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

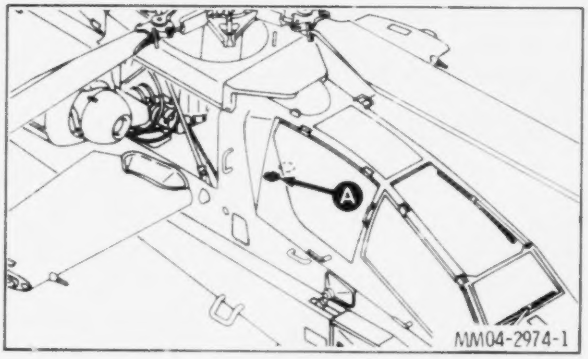
Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed
2-3-49	Right forward side transmission strut removed
12-2-13	Blade de-ice system controller removed

A. REMOVAL

1. Enter pilot station (para 1-7-1). Observe all safety precautions.

2. Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.

3. Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.



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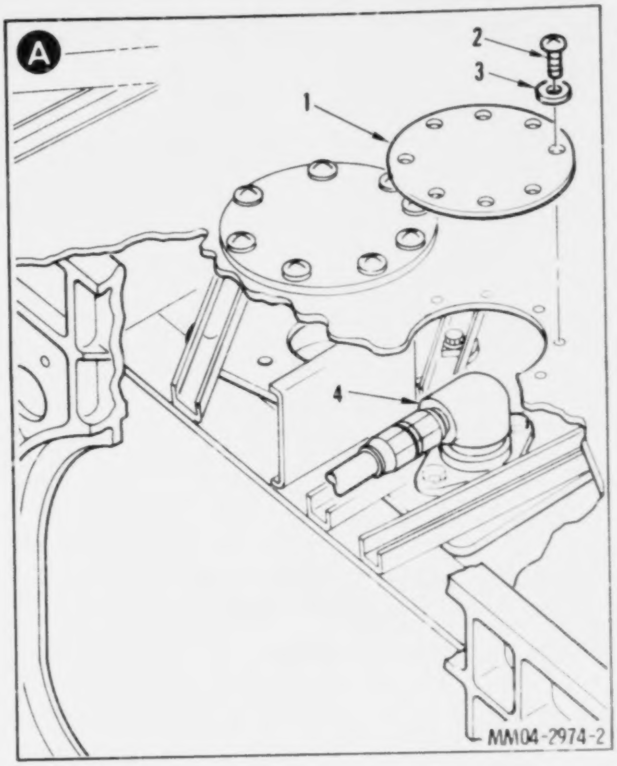
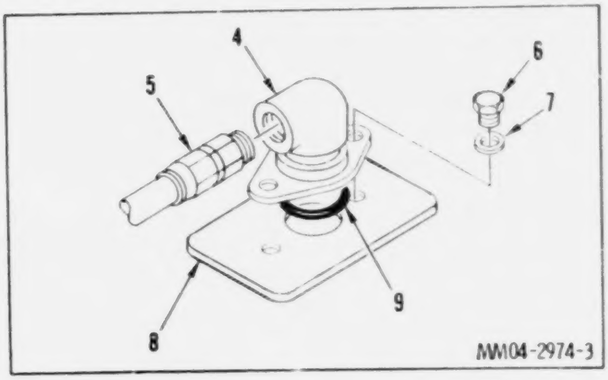
10-2-103. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-103

4. **From transmission deck, remove access cover (1).** Remove eight screws (2) and eight washers (3).



5. **Remove N_2 inert breakaway valve (4).**
   a. Detach hose nut (5) from valve (4).
   b. Remove two bolts (6) and washers (7).
   c. Remove valve (4) from mount pad (8).
   d. Remove and discard packing (9).



B. **CLEANING**

1. **Clean N_2 inert breakaway valve, attaching hardware, and mounting surface of mount pad** (para 1-5-36).
2. **Clean sealing compound residue from access panel and mounting area on transmission deck** (para 1-5-36).

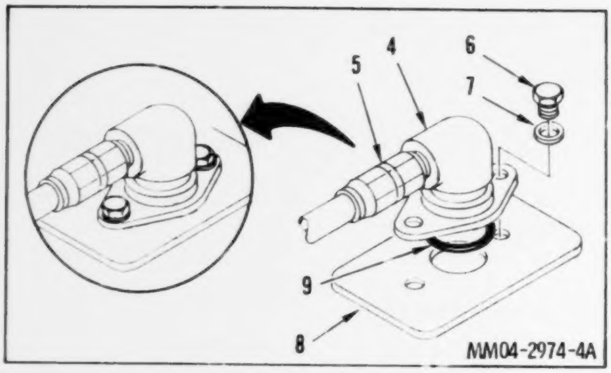
GO TO NEXT PAGE

10-2-103. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE REMOVAL/INSTALLATION (cont) 10-2-103

C. INSPECTION

1. Check N_2 inert breakaway valve for cracks, nicks, dents, or breaks (para 10-2-1).

2. Check N_2 inert breakaway valve for corrosion (para 1-5-38).



D. INSTALLATION

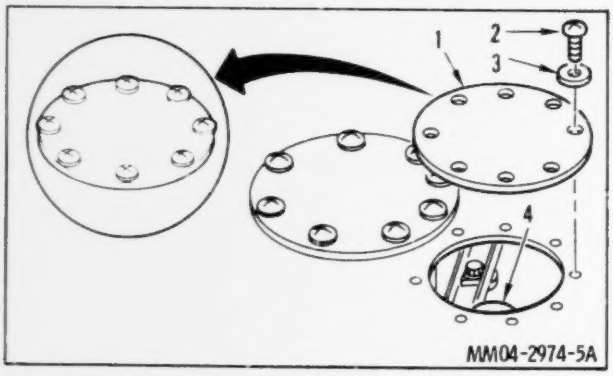
1. Install valve (4) on pad (8).

   a. Lubricate new valve packing (9). Use petrolatum (E16).

   b. Install packing (9) into mount end of valve (4).

   c. Place valve (4) on mount pad (8) in position shown. Install two washers (7) and bolts (6).

   d. Attach hose nut (5) to valve (4).



2. Inspect (TI).

3. Secure access cover (1).

   a. Aline cover (1) with mounting holes in transmission deck.

   b. Install eight washers (3) and screws (2).

4. Apply sealing compound as fillet seal to access cover (1) (TM 55-1500-204-25/1). Use sealing compound (E124).

5. Refuel forward fuel cell (para 1-5-5).

6. Install right forward side transmission strut (para 2-3-49).

7. Install main rotor blade de-ice system controller (para 12-2-13).

8. Perform rotor blade de-ice operational check (TM 55-1520-238-T).

9. Perform nitrogen inerting system operational check (TM 55-1520-238-T).

10. Secure panel R200 (para 2-2-2).

END OF TASK

10-2-104. NITROGEN (N_2) INERT VENT VALVE REMOVAL/INSTALLATION 10-2-104

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Vise, Machinists	5120-00-082-1434

Materials/Parts:

	Packing (2)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

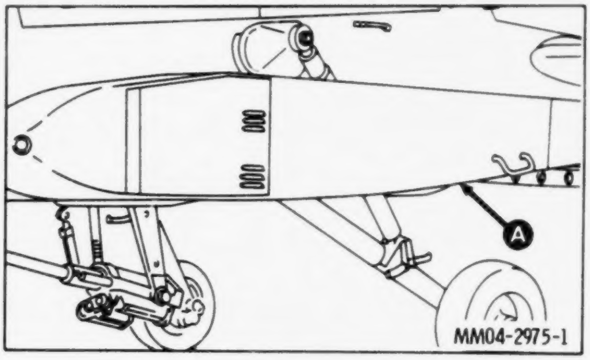
TM 55-1520-238-T
TM 9-1090-208-23-1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed
TM 9-1090-208-23-1	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**
3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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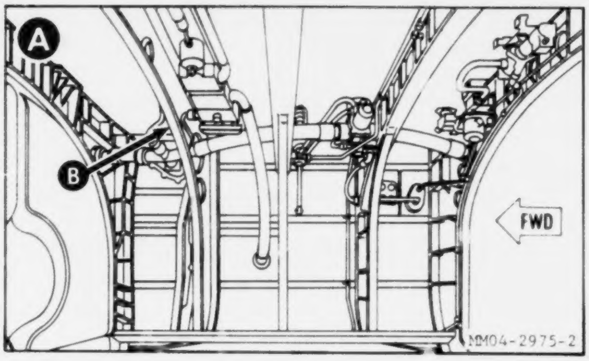
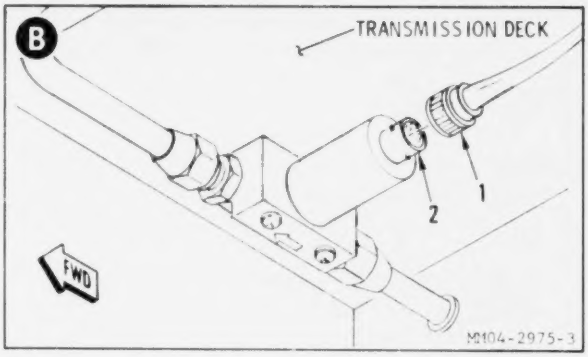
10-2-104. NITROGEN (N_2) INERT VENT VALVE REMOVAL/INSTALLATION (cont) 10-2-104

WARNING

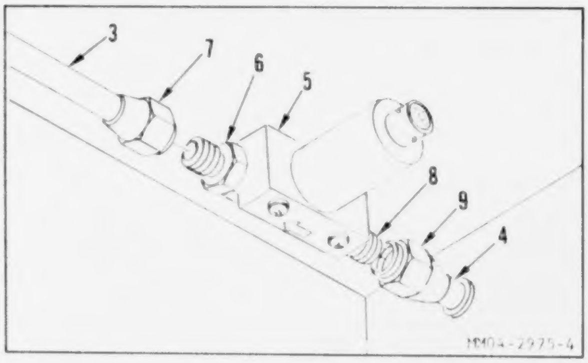
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.


A
B
FWD
MM04-2975-2

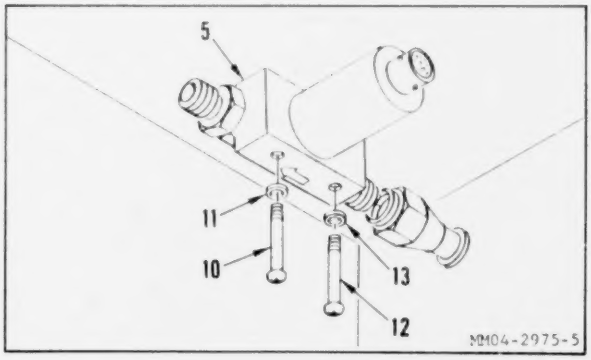
4. Detach electrical connector P1086 (1) from N_2 inert vent valve connector L48J1 (2).


B
TRANSMISSION DECK
2
1
FWD
MM04-2975-3

5. Disconnect tubes (3) and (4) from N_2 inert vent valve (5).
   a. Hold union (6). Disconnect nut (7).
   b. Hold union (8). Disconnect nut (9).


3
7
6
5
8
9
4
MM04-2975-4

6. Remove vent valve (5) from mounting position on transmission deck.
   a. Remove screw (10) and washer (11) from valve (5).
   b. Remove screw (12) and washer (13) from valve (5).


5
11
10
13
12
MM04-2975-5

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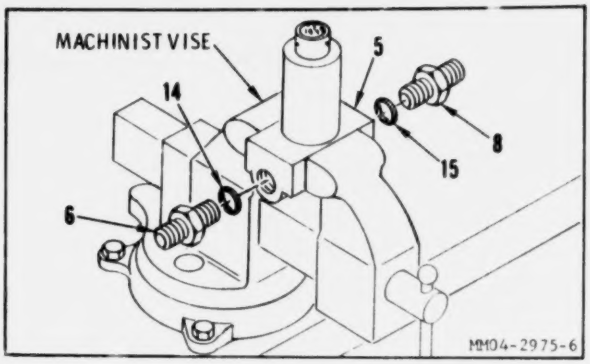
10-2-104. NITROGEN (N_2) INERT VENT VALVE REMOVAL/INSTALLATION (cont) 10-2-104

7. **Remove unions (6) and (8) from vent valve (5).**

   a. Place valve (5) in machinist vise.

   b. Remove union (6) from valve (5). Remove and discard packing (14).

   c. Remove union (8) from valve (5). Remove and discard packing (15).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

1. **Check vent valve, unions, and tube nuts for damaged threads** (para 10-2-1).
2. **Check vent valve and all attaching parts for cracks, nicks, and dents** (para 10-2-1).
3. **Check all removed and attaching parts for corrosion** (para 1-5-38).

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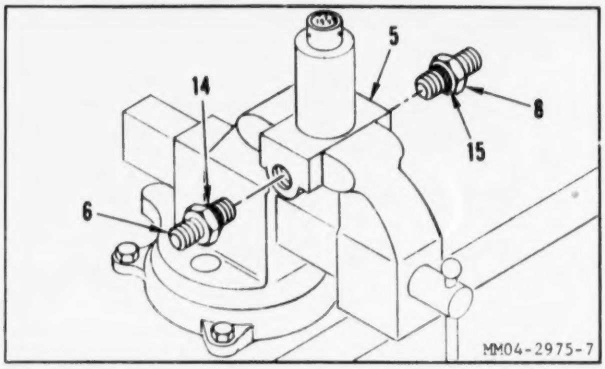
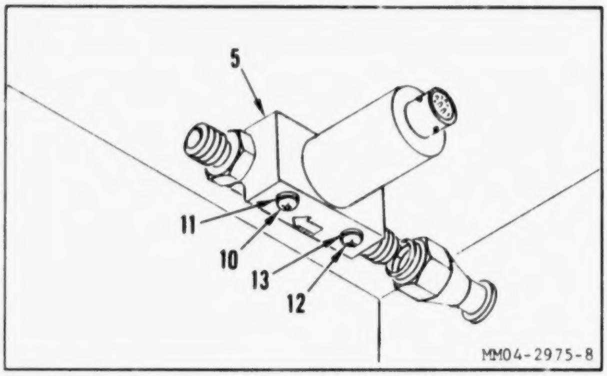
D. INSTALLATION





1. **Install unions (6) and (8) into vent valve (5).**
    - a. Place valve (5) in machinist vise.
    - b. Lubricate new packings (14) and (15). Use petrolatum (E16).
    - c. Lubricate threads of unions (6) and (8). Use petrolatum (E16).
    - d. Install packing (14) on union (6)
    - e. Packing (15) on union (8).
    - f. Install union (6) into valve (5). Tighten union (6).
    - g. Install union (8) into valve (5). Tighten union (8).
    - h. Remove valve (5) from vise.
2. **Install vent valve (5) to mounting position on transmission deck.**
    - a. Position valve (5) with arrow pointing forward.
    - b. Install screw (12) through washer (13) and valve (5) into deck aft mounting hole.
    - c. Install screw (10) through washer (11) and valve (5) into deck forward mounting hole.

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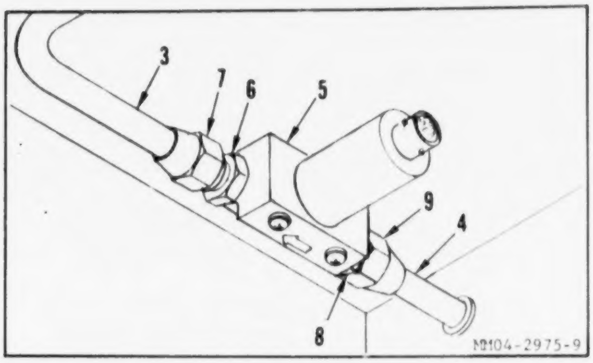
10-2-104. NITROGEN (N_2) INERT VENT VALVE REMOVAL/INSTALLATION (cont) 10-2-104

3. **Connect tubes (3) and (4) to vent valve (5).**

   a. Lubricate threads of unions (6) and (8). Use petrolatum (E17).

   b. Connect tube (4) to union (8).

   c. Connect tube (3) to union (6).

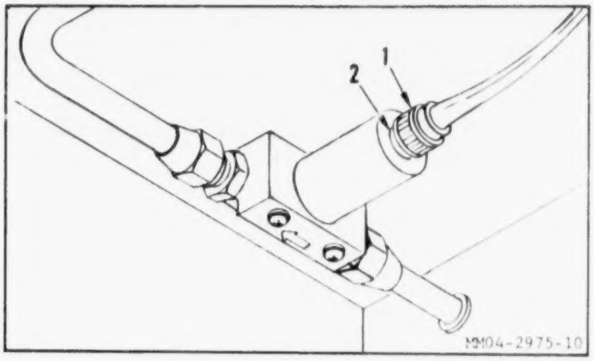


4. **Attach connector P1086 (1) to connector L48J1 (2).**

5. **Inspect (TI).**

6. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).

7. **Install ammunition storage magazine** (TM 9-1090-208-23).



END OF TASK

10-2-105. NITROGEN (N_2) INERTING MONITOR PANEL REMOVAL/INSTALLATION 10-2-105

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Reairer's	5180-00-323-4915
Gun Soldering Electric	3439-00-542-0396

Materials/Parts:

(E50) Solder

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-323-24

Equipment Conditions:

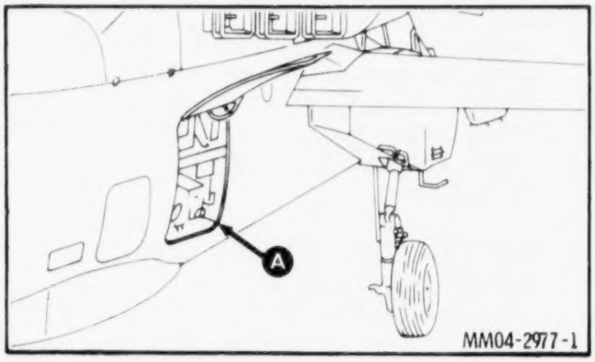
Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed; door R295 opened

A. **REMOVAL**

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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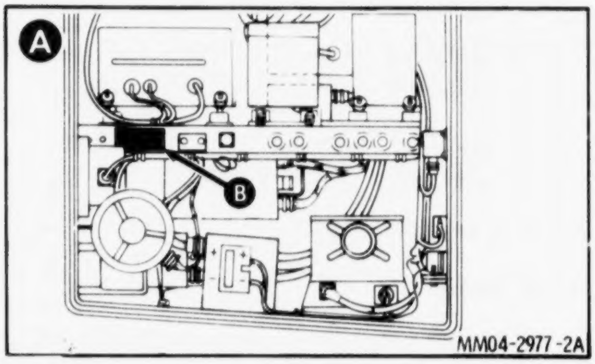

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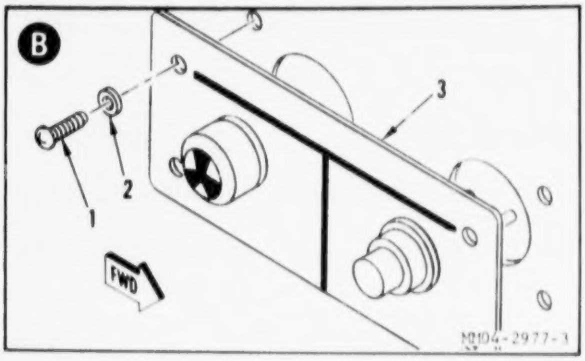
10-2-105. NITROGEN (N_2) INERTING MONITOR PANEL REMOVAL/INSTALLATION (cont) 10-2-105

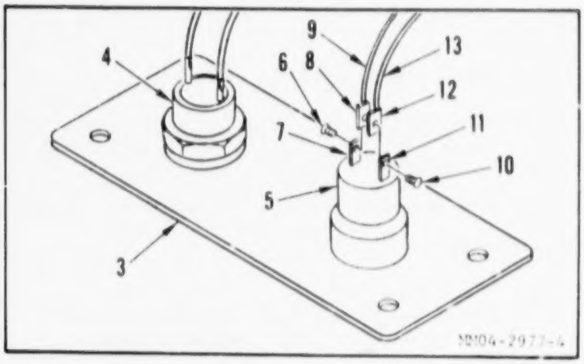
4. **Remove four screws (1) and washers (2) from nitrogen inerting monitor panel (3).**

5. **Pull panel (3) forward to gain access to rest indicator (4) and press-to-test switch (5).**



6. **Remove screw (6) from terminal post (7). Remove terminal lug (8) from press-to-test switch (5).** Identify wire (9).

7. **Remove screw (10) from terminal post (11). Remove terminal lug (12) from press-to-test switch (5).** Identify wire (13).



WARNING

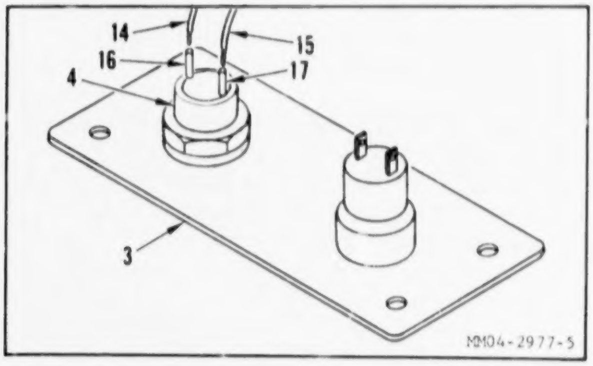
Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

8. **Unsolder wires (14) and (15) from indicator (4)** (TM 55-1500-323-24).

   a. Identify wires (14) and (15).

   b. Unsolder wire (14) from switch lug (16). Use soldering gun.

   c. Unsolder wire (15) from switch lug (17). Use soldering gun.



9. **Remove panel (3).**

B. CLEANING

Wipe all removed and attaching parts with a clean rag.

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10-2-105. NITROGEN (N_2) INERTING MONITOR PANEL REMOVAL/INSTALLATION (cont) 10-2-105

C. INSPECTION

1. Check nitrogen inerting monitor panel for cracks, nicks, dents, and readability of markings (para 10-2-1).

2. Check reset indicator and switch for general condition.

3. Check terminal posts and switch for cracks, breaks, and looseness (para 10-2-1).

4. Check lugs of indicator for cracks, breaks, and looseness.

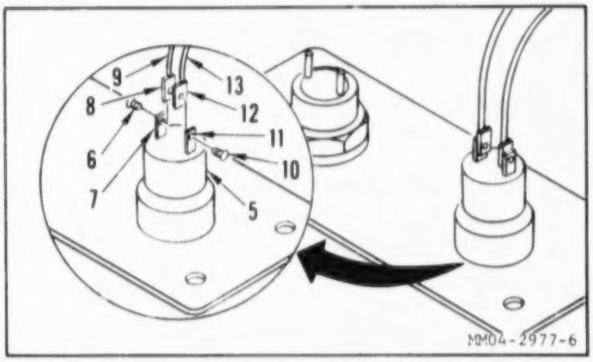
5. Check wires of press-to-test switch and wires of reset indicator for frayed or damaged insulation (para 10-2-1).

D. INSTALLATION

1. Attach wires (9) and (13) to press-to-test switch (5).

   a. Fasten terminal lug (12) of wire (13) to terminal post (11) with screw (10).

   b. Fasten terminal lug (8) of wire (9) to terminal post (7) with screw (6).



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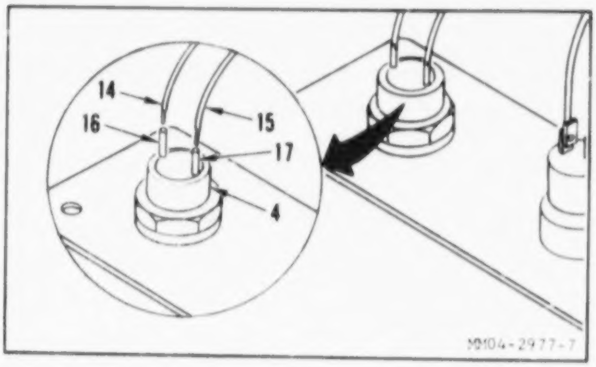
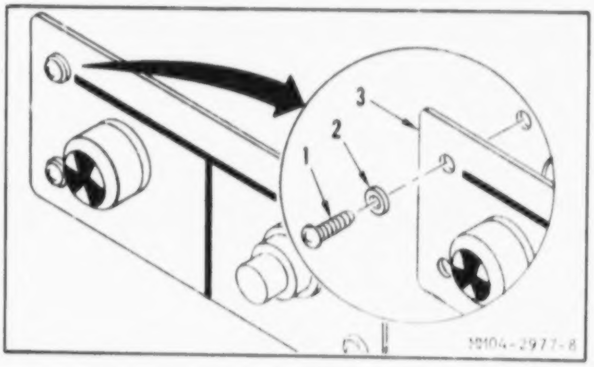
WARNING

Soldering iron can cause severe burns to personnel and start fires. Observe all safety precautions when using soldering iron. If injury occurs, seek medical aid.

2. **Solder wires (14) and (15) to indicator (4)** (TM 55-1500-323-24).
   a. Solder wire (14) to lug (16). Use soldering gun and solder (E50).
   b. Solder wire (15) to lug (17). Use soldering gun and solder (E50).



3. **Install panel (3).**
   a. Position panel (3) into position for mounting.
   b. Install four washers (2) and screws (1). Tighten screws.
4. **Inspect (TI).**
5. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).
6. **Secure access panel R200 and door R295** (para 2-2-2).



END OF TASK

10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION 10-2-106

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, Torque, 1/4 Drive	5120-00-585-4489

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

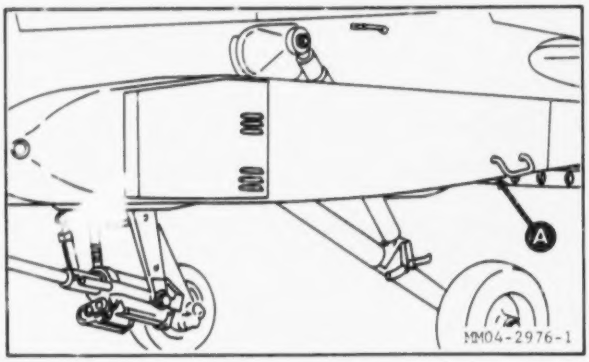
References:

TM 55-1520-238-T
TM 9-1090-208-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed
TM 9-1090-208-23	Ammunition storage magazine removed

A. **REMOVAL**



1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**
2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**
3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**

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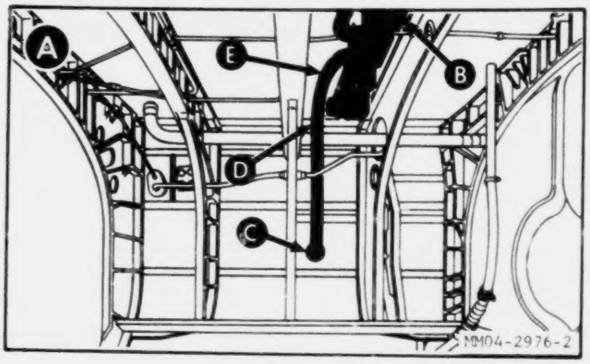
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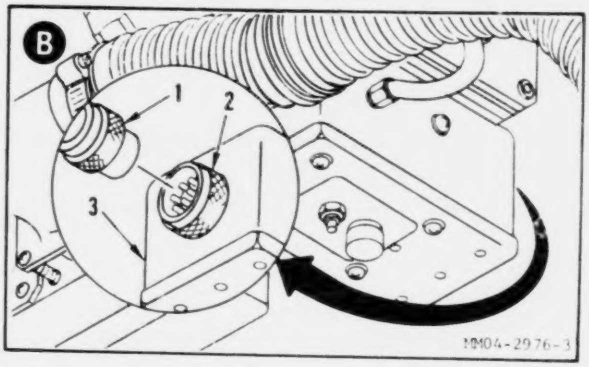
4. Detach connector P1085 (1) from connector A146J1 (2) on NIU (3) in ammunition bay.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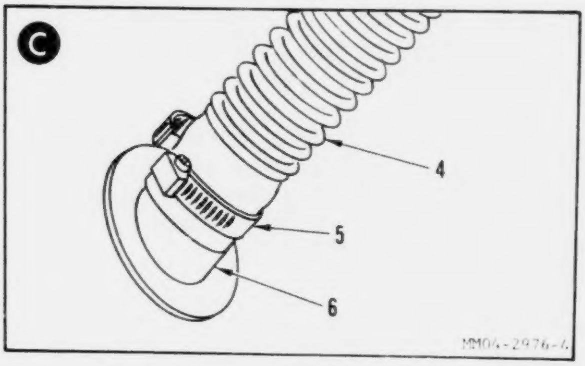
5. Remove NIU cooling air inlet hose (4).

   a. Loosen screw of worm band clamp (5) to free hose (4) from left vent (6).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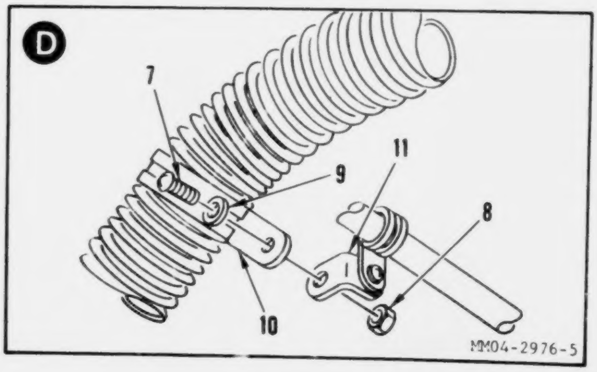
   b. Remove screw (7), nut (8), and washer (9) that frees support clamp (10) from tube bracket (11).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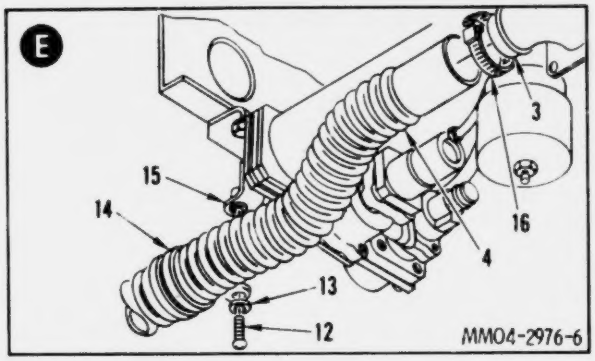
10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION (cont) 10-2-106

c. Remove screw (12), washer (13), and clamp (14) from NIU clamp support bracket (15).

d. Loosen screw of worm band clamp (16).

e. Remove hose (4) from left port of NIU (3).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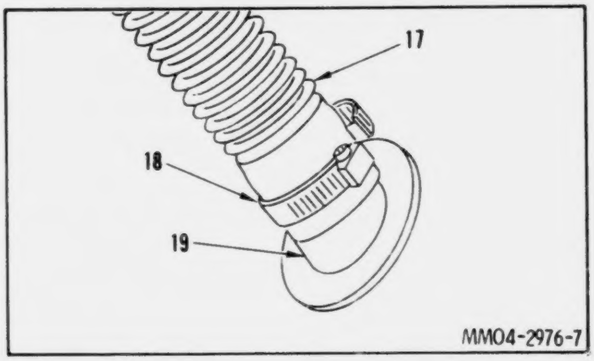
6. **Remove NIU cooling air outlet hose (17).**

   a. Loosen screw of worm band clamp (18) to free hose (17) from right vent (19).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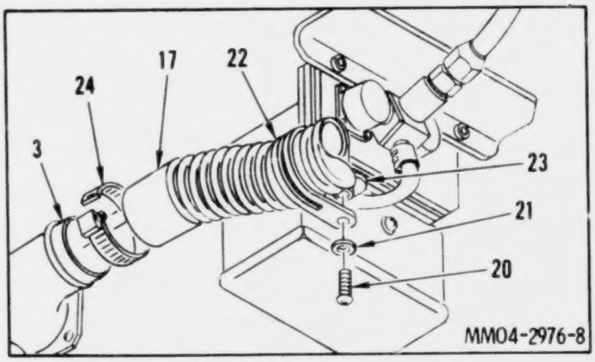
   b. Remove screw (20), washer (21), and support clamp (22) from NIU clamp support bracket (23).

   c. Loosen screw of worm band clamp (24).

   d. Remove hose (17) from NIU (3).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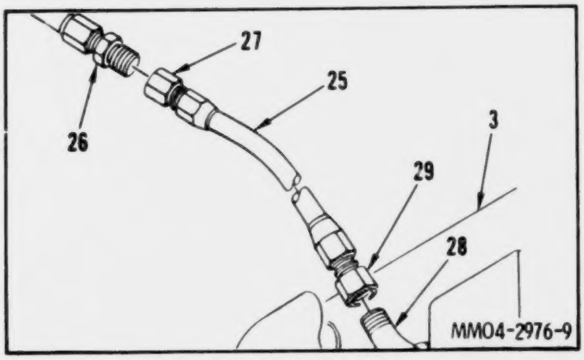
7. **Remove pressurized air supply inlet hose (25).**

   a. Hold bulkhead union (26). Disconnect hose nut (27).

   b. Hold NIU fitting (28). Disconnect hose nut (29).

   c. Remove hose (25) from NIU (3).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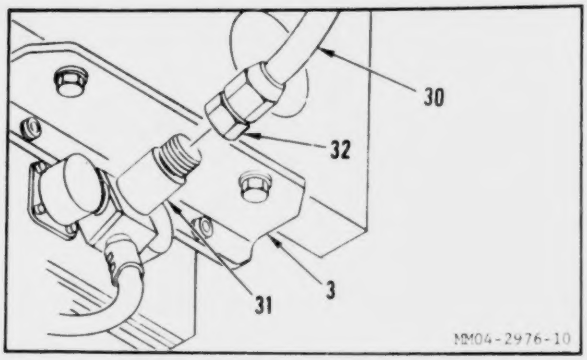
8. **Remove conditioned air outlet hose (30).**

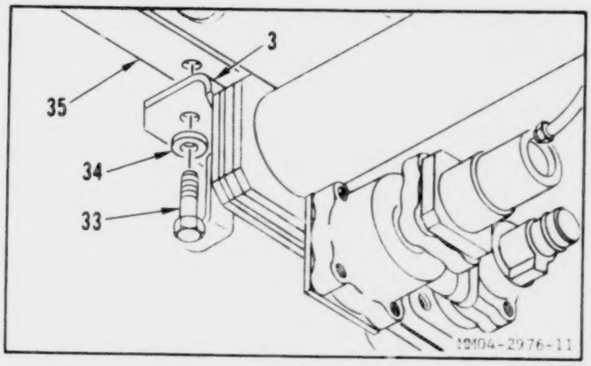
   a. Hold NIU fitting (31). Disconnect hose nut (32).

   b. Remove hose (30) from NIU (3).



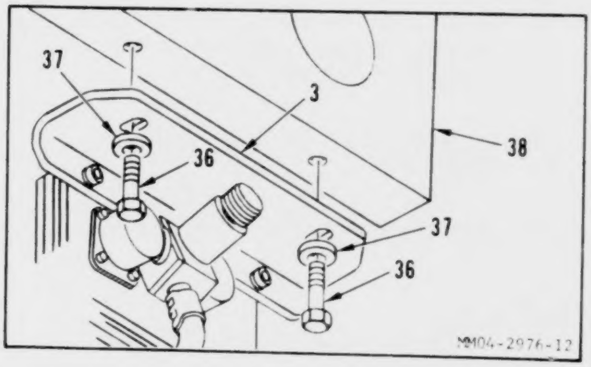
9. **Remove NIU (3) from ammunition bay.**

   a. Remove two bolts (33) and washers (34) from intercostal bracket (35) at left end of NIU (3).



   b. Remove two bolts (36) and washers (37) from bracket (38) at right end of NIU (3).

   c. Remove NIU (3) from ammunition bay.



B. **CLEANING**

1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

2. **Wipe two vents with a clean rag.**

C. **INSPECTION**

1. **Check NIU for cracks, nicks, and dents.** Check unions and all attaching hardware for damaged threads (para 10-2-1).

GO TO NEXT PAGE

10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION (cont) 10-2-106

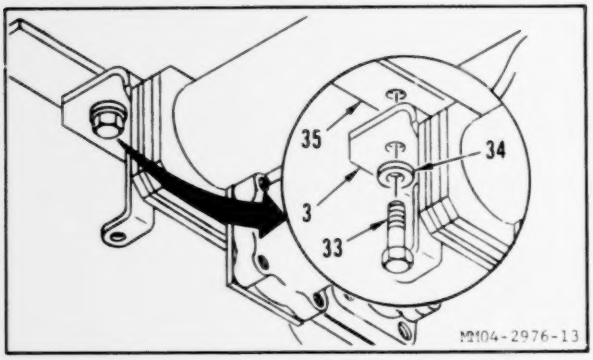
2. **Check connector and NIU connector for damaged pins, pin holes, and threads.** None allowed.

3. **Check all removed and attaching parts for corrosion** (para 1-5-38).

D. **INSTALLATION**

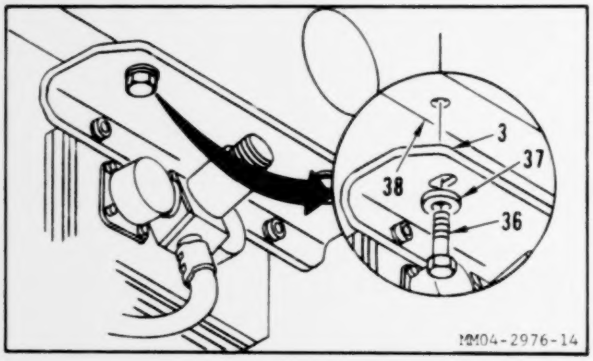
1. **Install NIU (3) in ammunition bay.** Torque bolts (33) and (36) to **45 INCH-POUNDS.**

   a. Aline left end mounting holes of NIU (3) with holes of bracket (35). Install two washers (34) and two bolts (33).

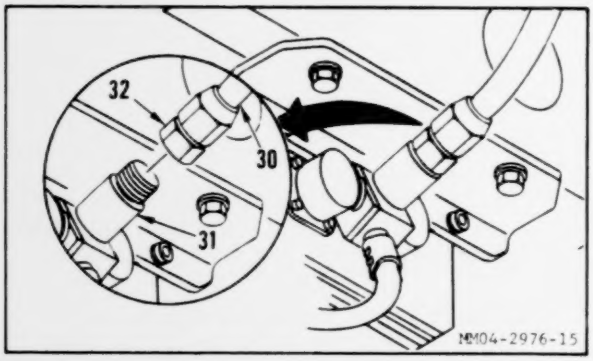


   b. Aline right mounting holes of NIU (3) with holes of bracket (38). Install two washers (37) and two bolts (36).

   c. Torque bolts (33) and (36) to **45 INCH-POUNDS.**



2. **Install hose (30) on fitting (31).** Hold fitting (31). Torque hose nut (32) to **110 INCH-POUNDS.**



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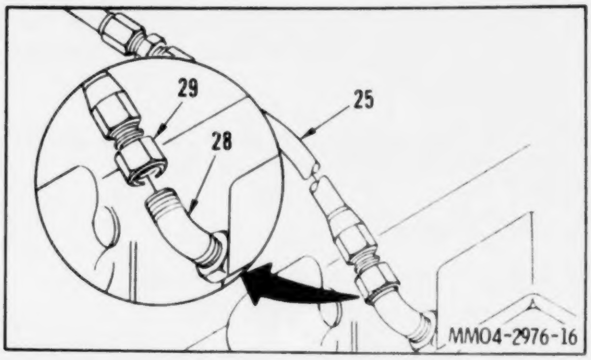
10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION (cont) 10-2-106

3. **Install hose (25).**

   a. Connect hose nut (29) to NIU fitting (28).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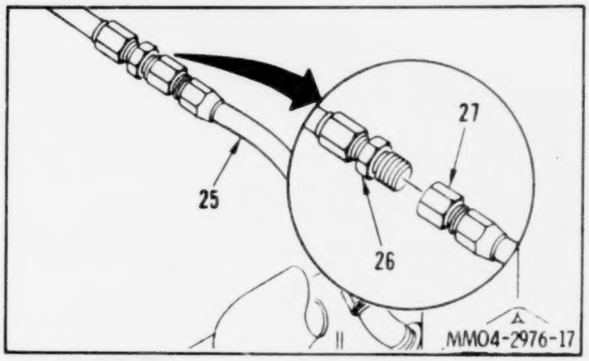
   b. Connect hose nut (27) to bulkhead union (26).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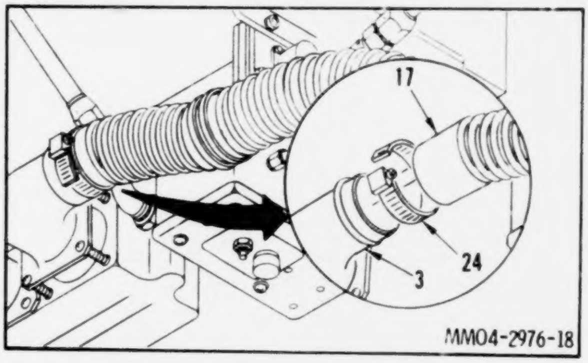
4. **Install hose (17).**

   a. Slide worm band clamp (24) over end of hose (17).

   b. Place end of hose (17) on right port of NIU (3).

   c. Tighten screw of clamp (24) to secure hose (17) to right port of NIU (3).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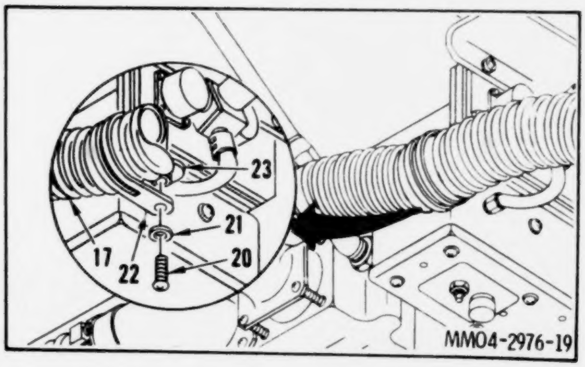
   d. Slide support clamp (22) over free end of hose (17) into position at bracket (23).

   e. Install screw (20) through washer (21), and clamp (22) into nut plate of bracket (23). Tighten screw (20).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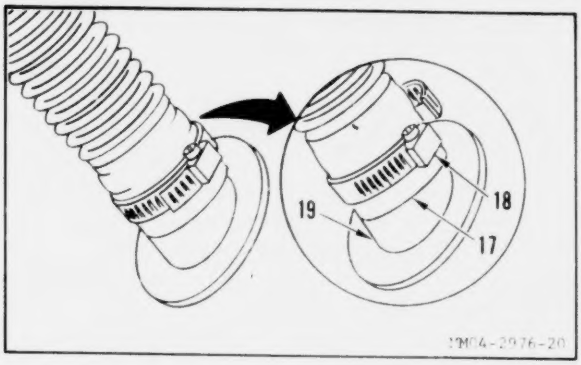
10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION (cont) 10-2-106

e. Slide worm band clamp (18) over free end of hose (17).

f. Place end of hose (17) over vent (19).

g. Slide clamp (18) into position to secure hose (17) to vent (19). Tighten clamp (18).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5. **Install hose (4).**

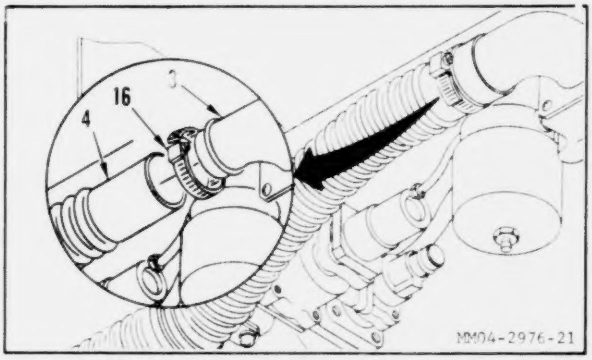
a. Slide worm band clamp (16) over end of hose (4).

b. Place end of hose (4) over left port of NIU (3).

c. Tighten screw of clamp (16) to secure hose (4) to port of NIU (3).

d. Slide support clamp (14) over free end of hose (4) into position at bracket (15).

e. Install screw (12) through washer (13) and clamp (14) into bracket (15). Tighten screw (12).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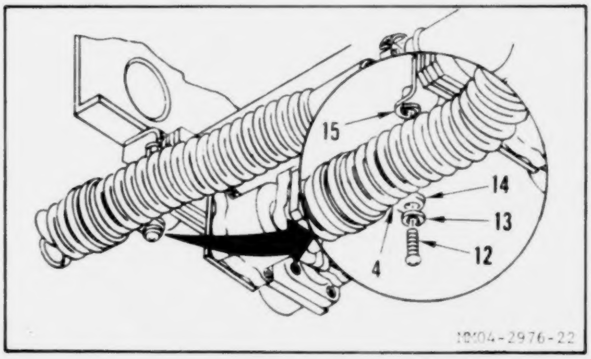
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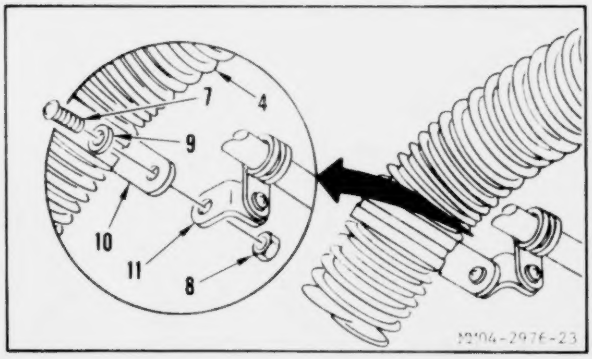
e. Slide clamp (10) over free end of hose (4) into position at bracket (11).

f. Install screw (7) through washer (9), clamp (10), and bracket (11). Install nut (8).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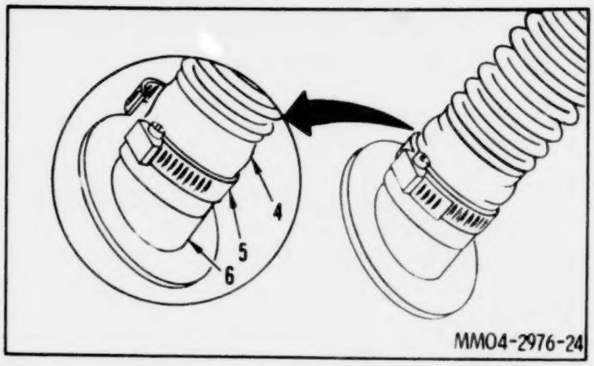
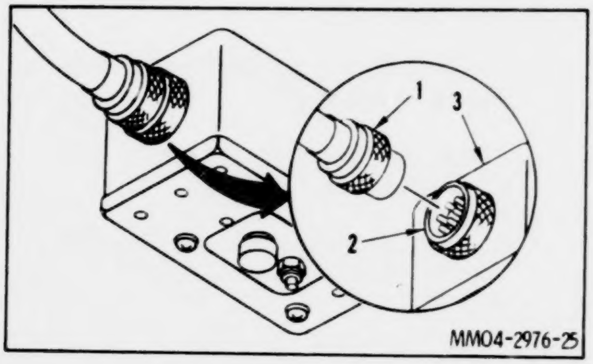
10-2-106. NITROGEN INERTING UNIT (NIU) REMOVAL/INSTALLATION (cont) 10-2-106



g. Slide worm band clamp (5) over free end of hose (4).

h. Place end of hose (4) over vent (6).

i. Slide clamp (5) into position to secure hose (4) to vent (6). Tighten screw of clamp (5).



6. **Attach connector P1085 (1) to connector A146J1 (2) of NIU (3).**
7. Inspect (TI).
8. **Perform** nitrogen inerting **system** operational check (TM 55-1520-238-T).
9. Install **ammunition storage magazine** (TM 9-1090-208-23).
10. **Secure access panel R200** (para 2-2-2).

END OF TASK

10-2-107. NITROGEN INERTING UNIT (NIU) FILTER REMOVAL/INSTALLATION 10-2-107

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing
(E16)	Petrolatum

Personnel Required:

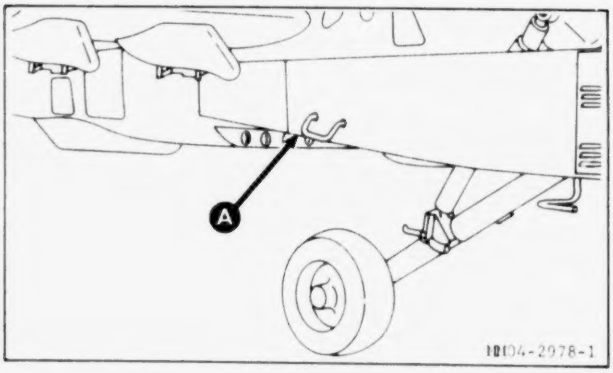
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-238-23

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-11	Fuel system vented
TM 9-1090-208-23	Ammunition storage magazine removed



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10-2-107. NITROGEN INERTING UNIT (NIU) FILTER REMOVAL/INSTALLATION (cont) 10-2-107

A. REMOVAL

1. **Remove NIU filter (1).**
   - a. Loosen canister (2).
   - b. Remove canister (2), plate (3), and filter (1) from mount (4).
   - c. Remove and discard filter packing (5).

B. CLEANING

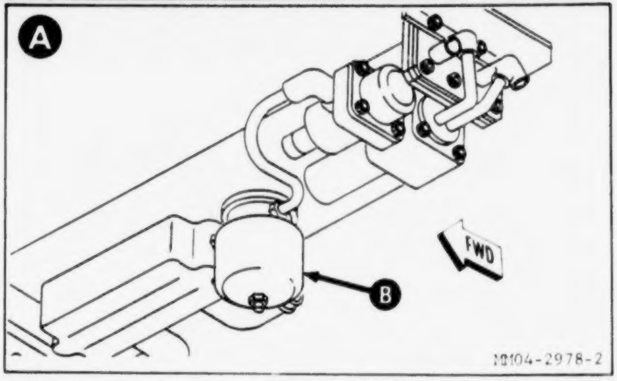
Wipe canister and mount with a clean rag.

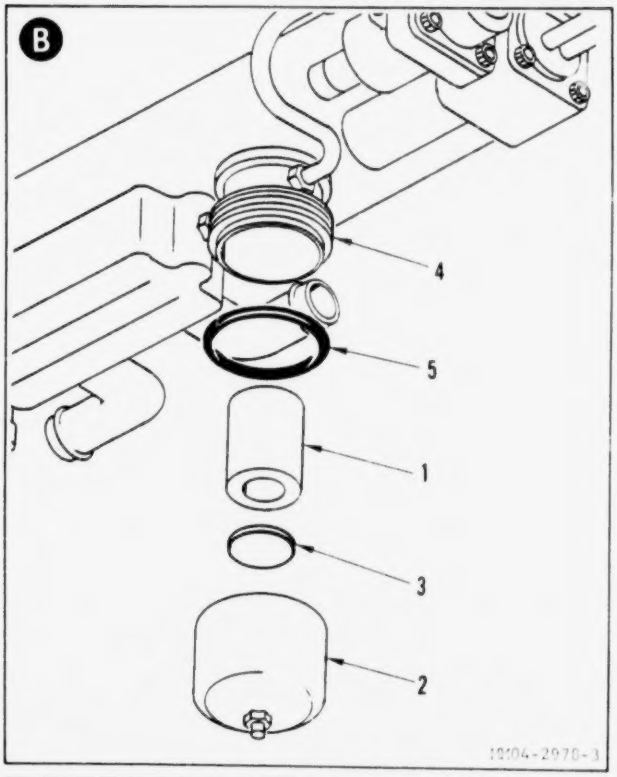
C. INSPECTION

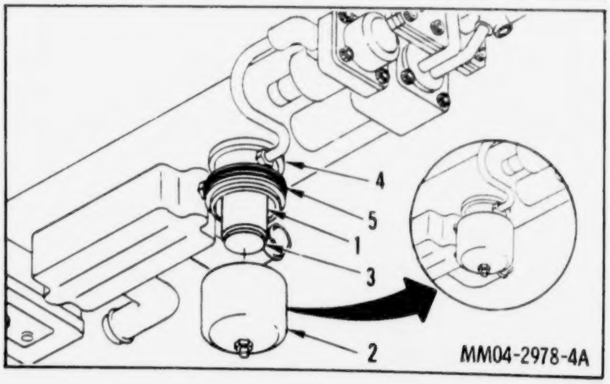
Check filter canister and filter mount for nicks, dents, breaks, and other damage. None allowed.

D. INSTALLATION

1. **Install new filter packing (5).** Lubricate packing (5) with petrolatum (E16).
2. **Install new filter (1).**
   - a. Fit plate (3) in bottom of filter (1).
   - b. Seat filter (1) correctly on mount (4).
   - c. Install and tighten canister (2).
3. **Inspect (TI).**
4. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).
5. **Install ammunition storage magazine** (TM 9-1090-208-23).







END OF TASK

10-2-108. NITROGEN INERTING UNIT (NIU) CONDITIONED AIR OUTLET HOSE REMOVAL/INSTALLATION 10-2-108

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 9-1090-238-23

Equipment Conditions:

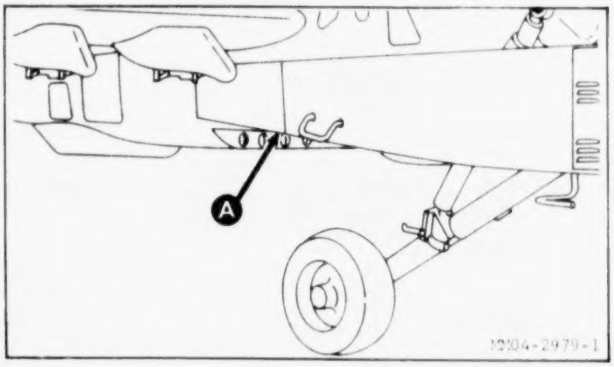
Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed
1-5-11	Fuel system vented
TM 9-1090-208-23	Ammunition storage magazine removed

A. **REMOVAL**

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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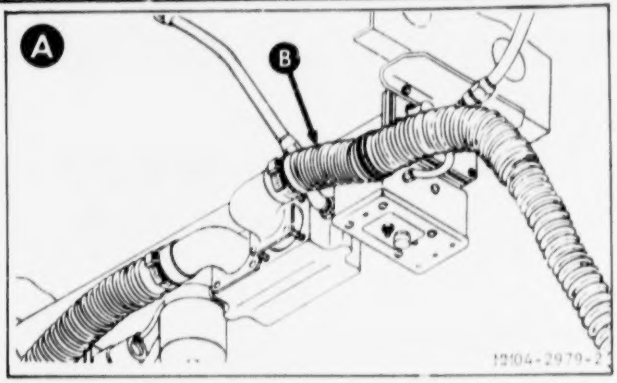
10-2-108. NITROGEN INERTING UNIT (NIU) CONDITIONED AIR OUTLET HOSE REMOVAL/INSTALLATION (cont) 10-2-108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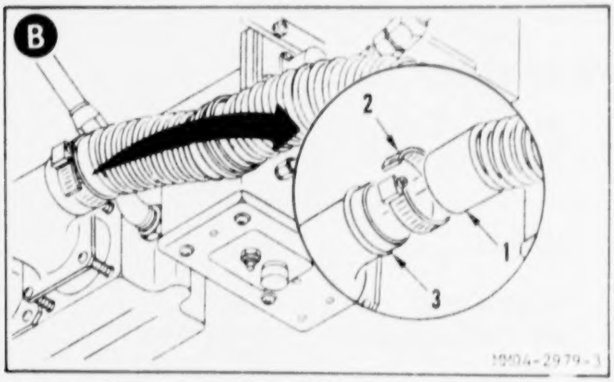
4. **Remove NIU cooling air outlet hose (1) in ammunition bay.**

   a. Loosen screw of worm band clamp (2) to free hose (1) from NIU port (3).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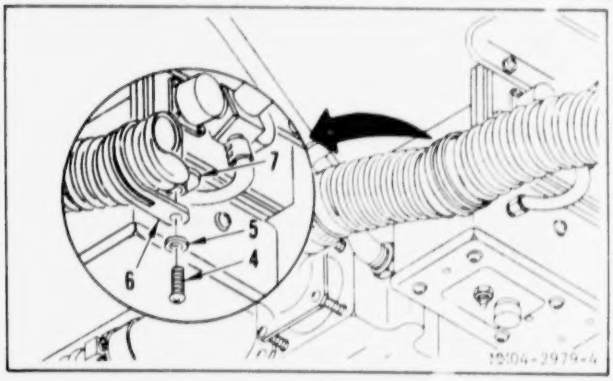
   b. Remove screw (4), washer (5), and support clamp (6) from support bracket (7).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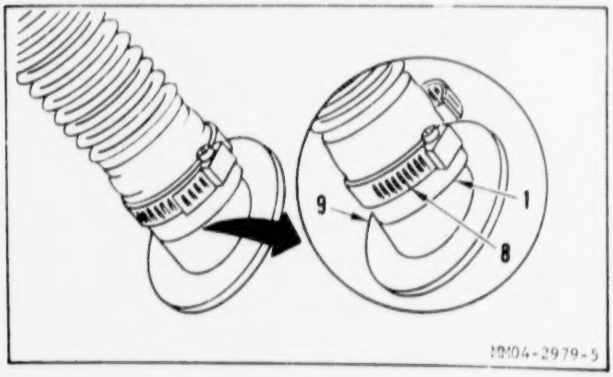
   c. Loosen screw of worm band clamp (8).

   d. Remove hose (1) from vent (9).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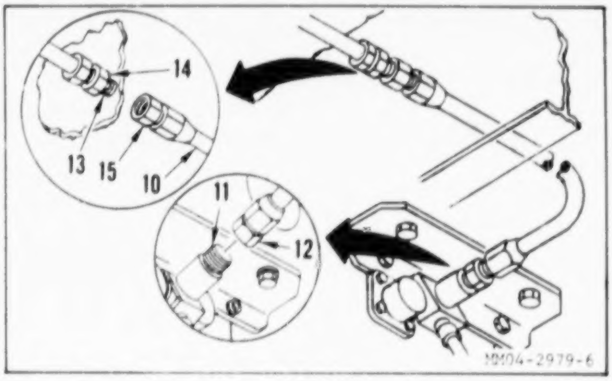
10-2-108. NITROGEN INERTING UNIT (NIU) CONDITIONED AIR OUTLET HOSE REMOVAL/INSTALLATION (cont) 10-2-108

5. **Remove conditioned air outlet hose (10).**

   a. Hold NIU fitting (11). Disconnect hose nut (12).

   b. Hold nut (13) at bulkhead union (14). Disconnect hose nut (15).

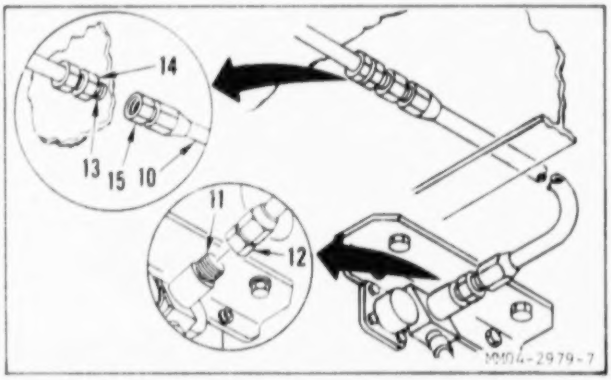
   c. Remove hose (10).



B. **CLEANING**

1. **Wipe outlet hose, NIU fitting, bulkhead union, and surrounding area with a clean lint-free cloth (E32).**

2. **Wipe ends of NIU coolng air hose, NIU port, and vent with a clean lint-free cloth (E32).**



C. **INSPECTION**

1. **Check conditioned air outlet hose for cracks, breaks, or tears** (para 10-2-1).

2. **Check hose nuts, NIU fitting, and bulkhead union for cracks, nicks, dents, or damaged threads** (para 10-2-1).

3. **Check NIU cooling air outlet hose for cracks, tears, or other damage** (para 10-2-1).

GO TO NEXT PAGE

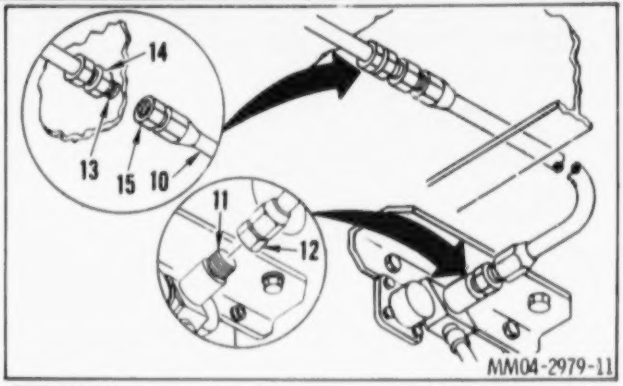
10-2-108. NITROGEN INERTING UNIT (NIU) CONDITIONED AIR OUTLET HOSE REMOVAL/INSTALLATION (cont) 10-2-108

D. INSTALLATION

1. **Install hose (10).**

   a. Install nut (15) on union (13).

   b. Install nut (12) on NIU fitting (11).



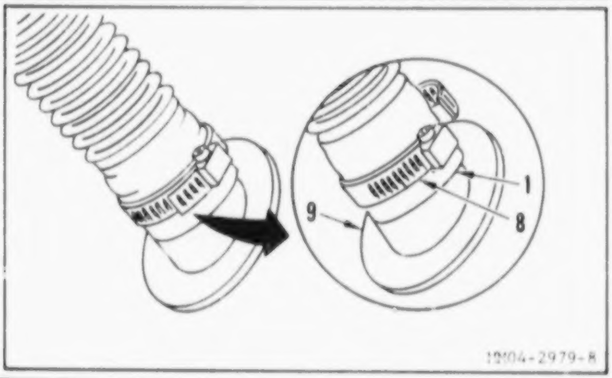
MM04-2979-11

2. **Install hose (1).**

   a. Slide worm band clamp (8) over free end of hose (1).

   b. Place end of hose (8) over vent (9).

   c. Slide clamp (8) into position to secure hose (1) to vent (9). Tighten clamp (8).



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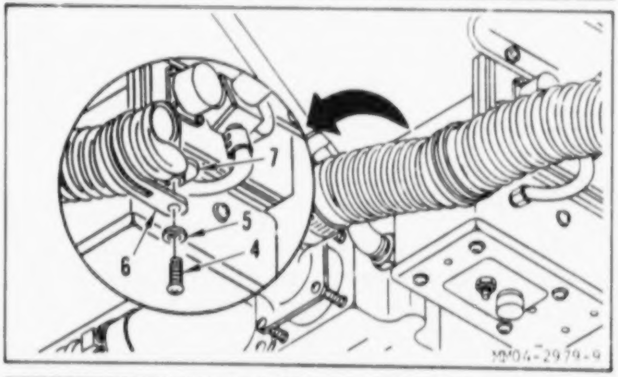
   d. Slide support clamp (6) over free end of hose (1) into position at NIU support bracket (7).

   e. Install screw (4) through washer (5) and clamp (6) into bracket (7).

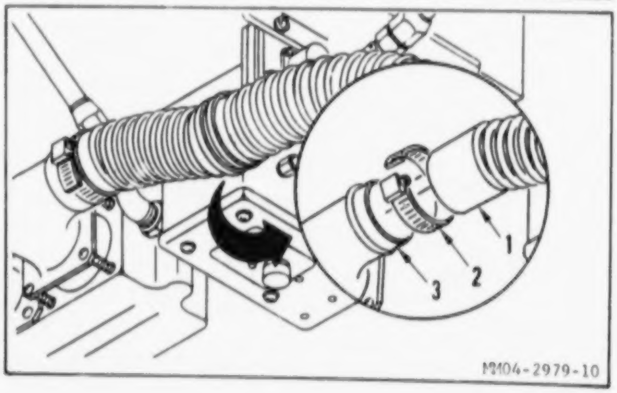


MM04-2979-9

   f. Slide clamp (2) over end of hose (1).

   g. Place end of hose (1) on to NIU port (3).

   h. Tighten clamp (2).



MM04-2979-10

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10-2-108. NITROGEN INERTING UNIT (NIU) CONDITIONED AIR OUTLET HOSE REMOVAL/INSTALLATION (cont) 10-2-108

3. Inspect (TI).

4. Perform nitrogen inerting system operational check (TM 55-1520-238-T).

5. Install ammunition storage magazine (TM 9-1090-208-23).

6. Secure access panel R200 (para 2-2-2).

END OF TASK

10-2-109. NITROGEN (N_2) INERTING SYSTEM PRESSURIZED AIR SUPPLY HOSE REMOVAL/INSTALLATION 10-2-109

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

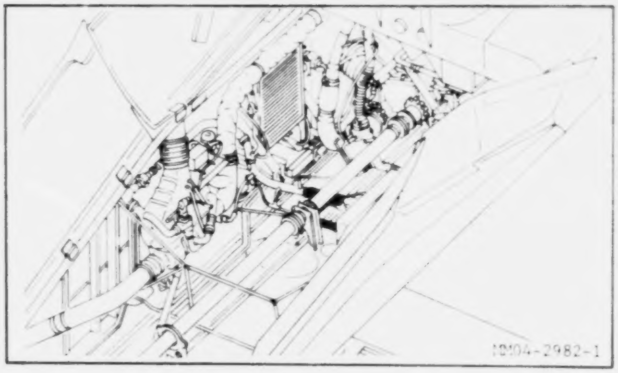
TM 55-1520-238-23-T

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access door R200 removed; doors T250L, T2560R, T290L, T290R, and L325 opened
1-5-11	Fuel system vented

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**
2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**
3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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10-2-109. NITROGEN (N_2) INERTING SYSTEM PRESSURIZED AIR SUPPLY HOSE REMOVAL/INSTALLATION (cont) 10-2-109

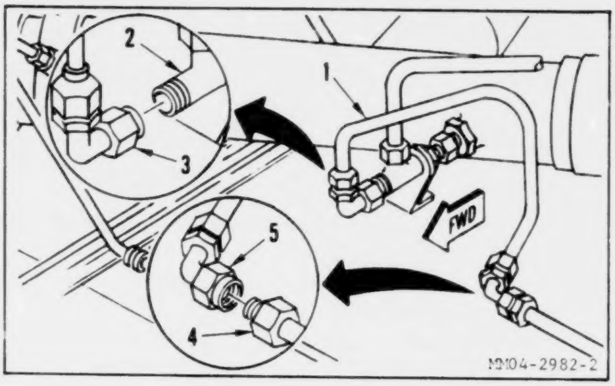
4. **Remove N_2 inerting pressurized air supply hose (1).**

   a. Hold pressurized air supply manifold T-fitting (2), and disconnect hose nut (3).

   b. Remove hose (1) from T-fitting (2).

   c. Hold fitting (4). Disconnect hose nut (5).

   d. Remove hose (1).



B. CLEANING

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. INSPECTION

Check all removed and attaching parts for nicks, dents, cracks, and stripped or damaged threads (para 10-2-1).

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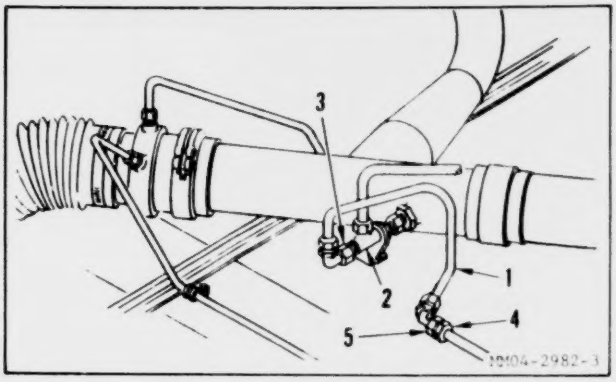
10-2-109. NITROGEN (N_2) INERTING SYSTEM PRESSURIZED AIR SUPPLY HOSE REMOVAL/INSTALLATION (cont) 10-2-109



D. INSTALLATION

1. **Install hose (1).**
   a. Install hose nut (5) on deck fitting (4).
   b. Install hose nut (3) on T-fitting (2).
2. **Inspect (TI).**
3. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).
4. **Secure access panel R200 and doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).

END OF TASK

10-2-110. NITROGEN INERTING UNIT (NIU) PRESSURIZED AIR SUPPLY INLET HOSE REMOVAL/INSTALLATION 10-2-110

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-23-T
TM 9-1090-208-23

Equipment Conditions:

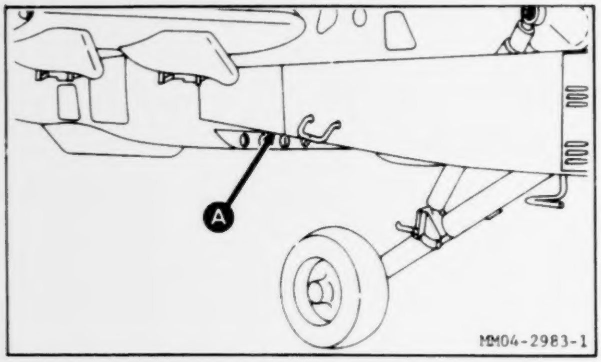
Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed
1-5-11	Fuel system vented
TM 9-1090-208-23	Ammo storage magazine removed

A. **REMOVAL**

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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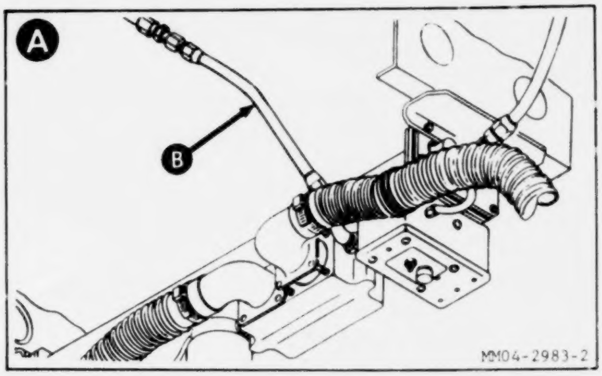
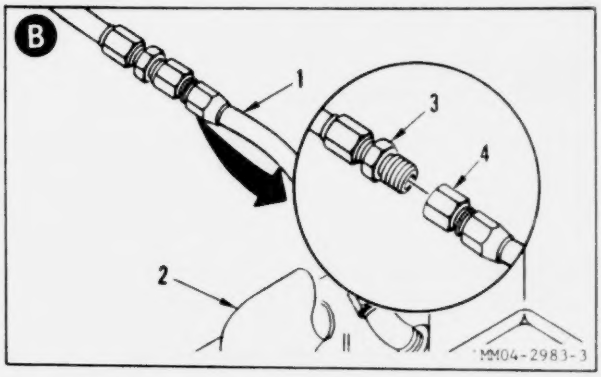
10-2-110. NITROGEN INERTING UNIT (NIU) PRESSURIZED AIR SUPPLY INLET HOSE REMOVAL/INSTALLATION (cont) 10-2-110



4. **Remove NIU pressurized air supply inlet hose (1) from NIU (2) in ammunition bay.**

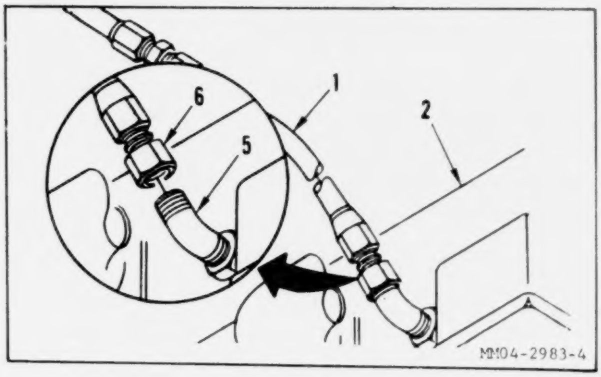
   a. Hold tube union (3). Disconnect hose nut (4).

   b. Remove hose (1) from union (3).



   c. Hold NIU fitting (5). Disconnect hose nut (6).

   d. Remove hose (1) from NIU (2).



B. **CLEANING**

Wipe all removed and attaching parts with a clean lint-free cloth (E32).

C. **INSPECTION**

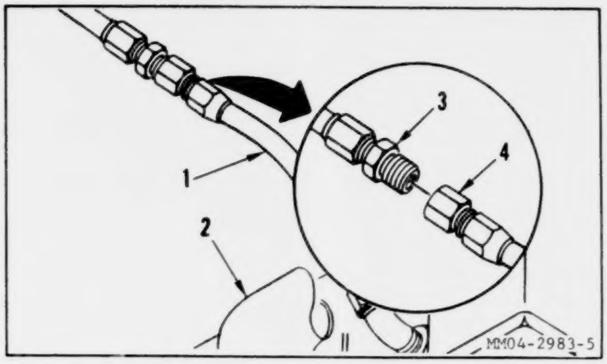
Check all removed and attaching parts for nicks, dents,cracks, and stripped or damaged threads (para 10-2-1).

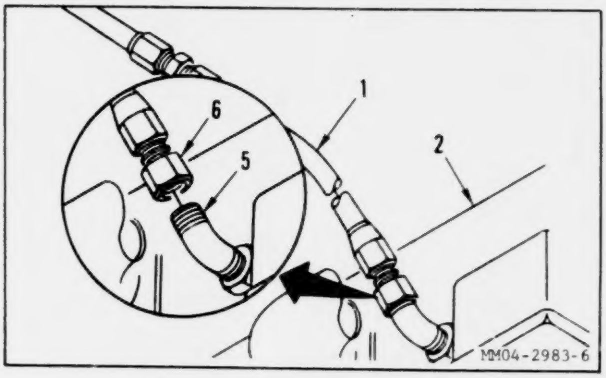
GO TO NEXT PAGE

10-2-110. NITROGEN INERTING UNIT (NIU) PRESSURIZED AIR SUPPLY INLET HOSE REMOVAL/INSTALLATION (cont) 10-2-110

D. INSTALLATION

1. **Install hose (1) to NIU (2).**
   - a. Install hose nut (4) on tube union (3).
   - b. Install hose nut (6) on NIU fitting (5).
2. **Inspect (TI).**
3. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).
4. **Install ammunition storage magazine** (TM 9-1090-208-23).
5. **Secure access panel R200** (para 2-2-2).





END OF TASK

10-2-111. NITROGEN INERTING UNIT (NIU) COOLING AIR INLET HOSE REMOVAL/INSTALLATION 10-2-111

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-23-T
TM 9-1090-208-23

Equipment Conditions:

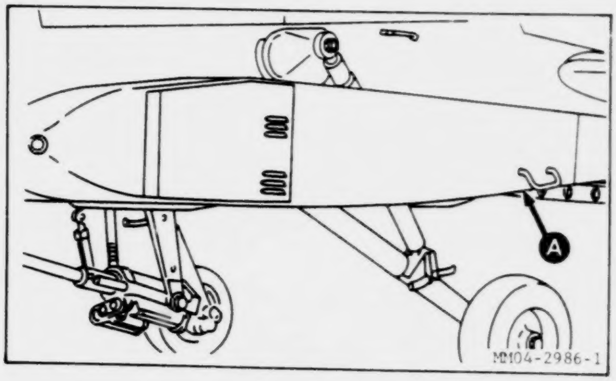
Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed
1-5-11	Fuel system vented
TM 9-1090-208-23	Ammo storage magazine removed

A. **REMOVAL**

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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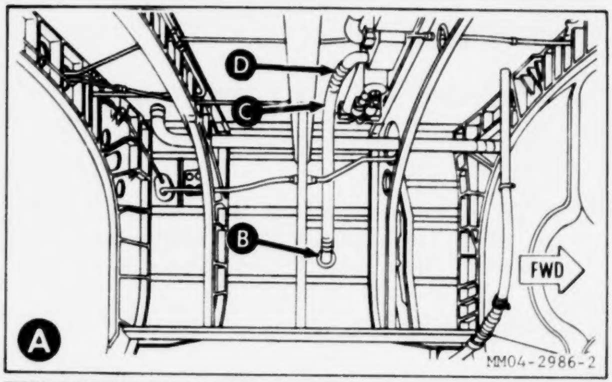
10-2-111. NITROGEN INERTING UNIT (NIU) COOLING AIR INLET HOSE REMOVAL/INSTALLATION (cont) 10-2-111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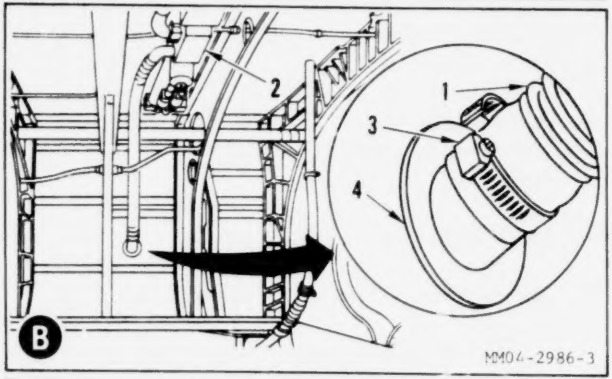
4. **Remove cooling air inlet hose (1) from NIU (2).**

   a. Loosen screw of worm band clamp (3) to free hose (1) from left vent (4).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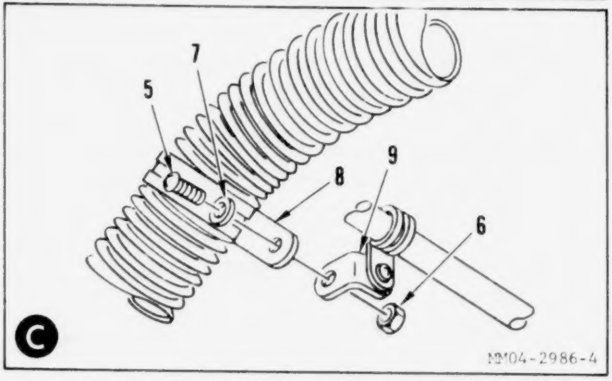
   b. Remove nut (6), screw (5), washer (7), and clamp (8) from tube bracket (9).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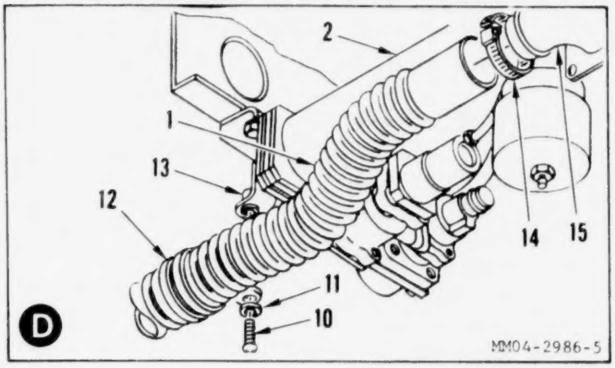
   c. Remove screw (10), washer (11), and clamp (12) from bracket (13).

   d. Loosen screw of worm band clamp (14). Remove hose (1) from left port (15) of NIU (2).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10-2-111. NITROGEN INERTING UNIT (NIU) COOLING AIR INLET HOSE REMOVAL/INSTALLATION (cont) 10-2-111

B. CLEANING

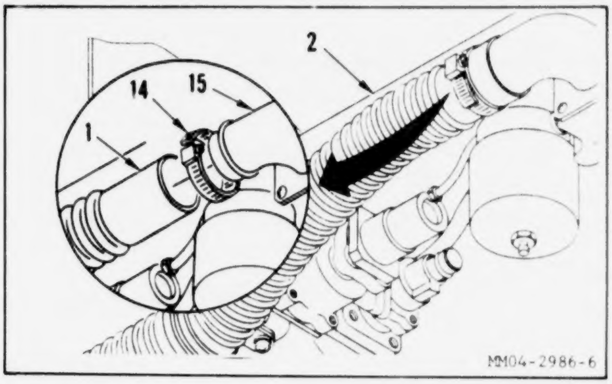
1. **Wipe inner and outer hose-mount area of hose with a clean lint-free cloth (E32).**
2. **Wipe inner and outer hose-mount area of left port of NIU and left vent with a clean lint-free cloth (E32).**

C. INSPECTION

1. **Check cooling air inlet hose for chafing, tears, or breaks.** None allowed.
2. **Check left port of NIU and left vent for nicks, dents, or cracks** (para 10-2-1).

D. INSTALLATION

1. **Install cooling air inlet hose (1).**
   a. Slide worm band clamp (14) over end of hose (1).
   b. Place end of hose (1) over left port (15) of NIU (2).
   c. Tighten clamp (14) to secure hose (1) to left port (15) of NIU (2).
   d. Slide clamp (12) over free end of hose (1) into position at NIU clamp support bracket (13).
   e. Install screw (10) through washer (11) and clamp (12) into bracket (13).
   f. Slide clamp (8) over free end of hose (1) into position at tube bracket (9).
   g. Install screw (5) through washer (7), clamp (8), and bracket (9). Install nut (6).



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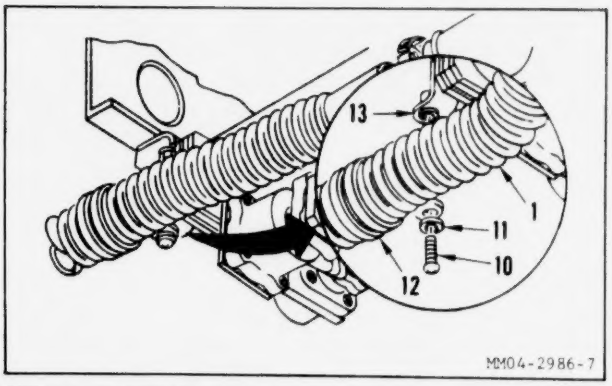

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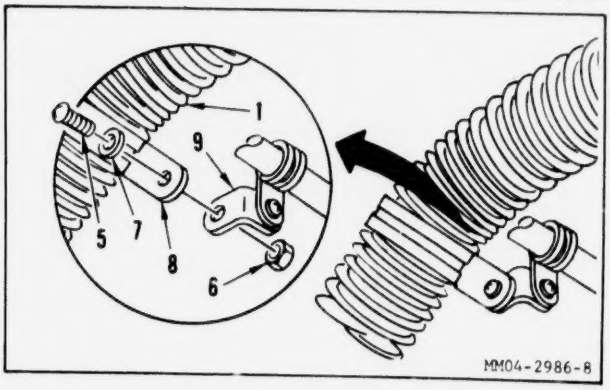

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10-2-111. NITROGEN INERTING UNIT (NIU) COOLING AIR INLET HOSE REMOVAL/INSTALLATION (cont) 10-2-111

g. Slide worm band clamp (3) over free end of hose (1).

h. Place end of hose (1) over left vent (4).

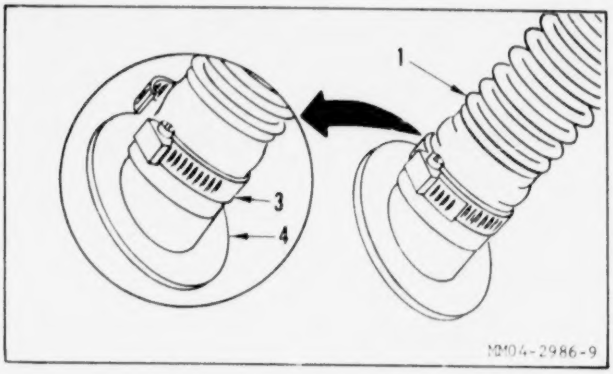
i. Slide clamp (3) into position to secure hose (1) to vent (4). Tighten clamp (3).

2. **Inspect (TI).**

3. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).

4. **Install ammunition storage magazine** (TM 9-1090-208-23).

5. **Secure access panel R200** (para 2-2-2).



END OF TASK

10-2-112. NITROGEN INERTING UNIT (NIU) COOLING AIR EXHAUST HOSE REMOVAL/INSTALLATION 10-2-112

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E32) Cloth, Lint-Free

Personnel Required:

67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-23-T
TM 9-1090-208-23

Equipment Conditions:

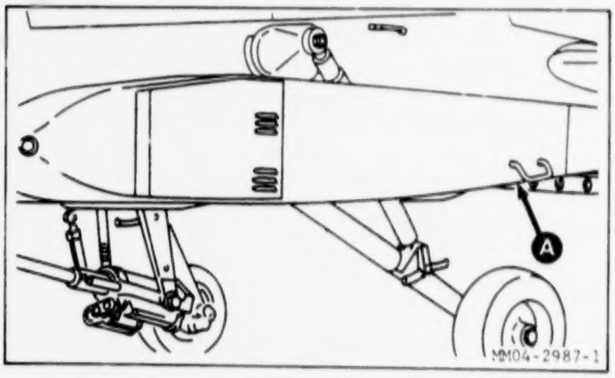
Ref	Condition
1-7-2	Helicopter safed
2-2-2	Access panel R200 removed
1-5-11	Fuel system vented
TM 9-1090-208-23	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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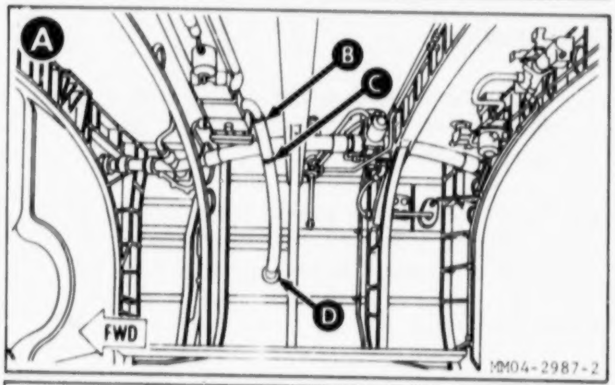
10-2-112. NITROGEN INERTING UNIT (NIU) COOLING AIR EXHAUST HOSE REMOVAL/INSTALLATION (cont) 10-2-112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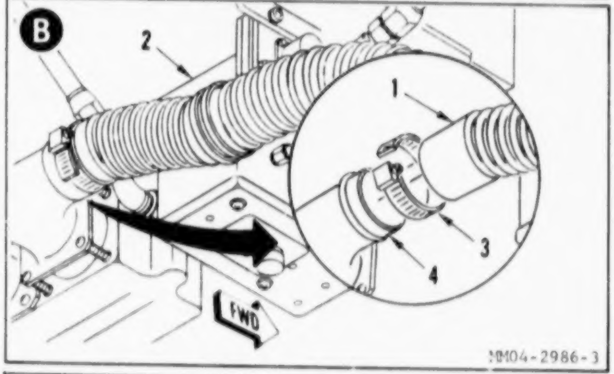
4. **Remove cooling air exhaust hose (1) from NIU (2).**

   a. Loosen screw of worm band clamp (3) to free hose (1) from right vent (4).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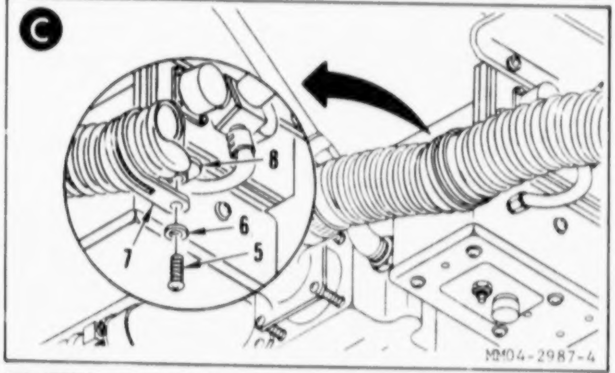
   b. Remove screw (5), washer (6), and clamp (7) from NIU clamp support bracket (8).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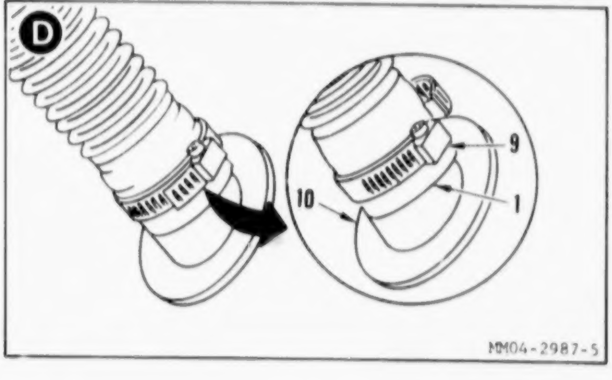
   c. Loosen screw of worm band clamp (9) and remove hose (1) from right port (10) of NIU (2).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10-2-112. NITROGEN INERTING UNIT (NIU) COOLING AIR EXHAUST HOSE REMOVAL/INSTALLATION (cont) 10-2-112

B. CLEANING

1. Wipe inner and outer hose-mount area of hose with a clean lint-free cloth (E32).

2. Wipe inner and outer hose-mount area of right port of NIU and right vent with a clean lint-free cloth (E32).

C. INSPECTION

1. Check cooling air exhaust hose for chafing, tears, or breaks (para 10-2-1).

2. Check right port of NIU and right vent for nicks, dents, or cracks (para 10-2-1).

D. INSTALLATION

1. Install hose (1).

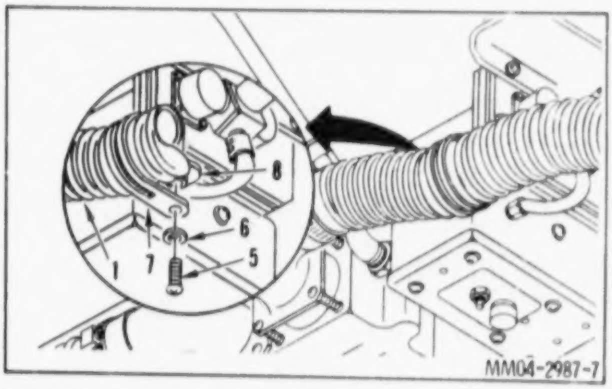
   a. Slide worm band clamp (9) over end of hose (1).

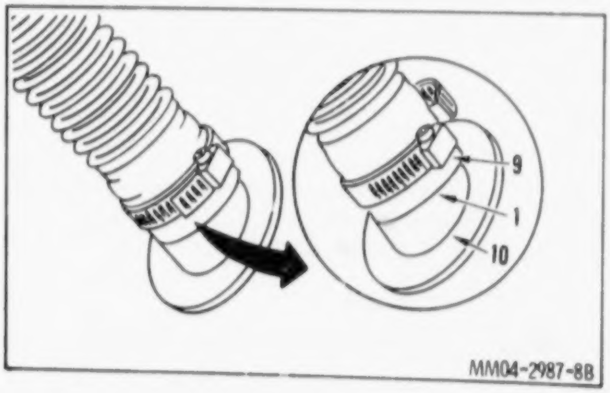
   b. Place end of hose (1) over right port (10) of NIU (2).

   c. Tighten clamp (9) to secure hose (1) to right port (10) of NIU (2).

   d. Slide clamp (7) over free end of hose (1) into position at bracket (8).

   e. Install screw (5) through washer (6) and clamp (7) into bracket (8).





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10-2-112. NITROGEN INERTING UNIT (NIU) COOLING AIR EXHAUST HOSE REMOVAL/INSTALLATION (cont) 10-2-112

   e. Slide worm band clamp (3) over free end of hose (1).

   f. Place end of hose (1) over right vent (4).

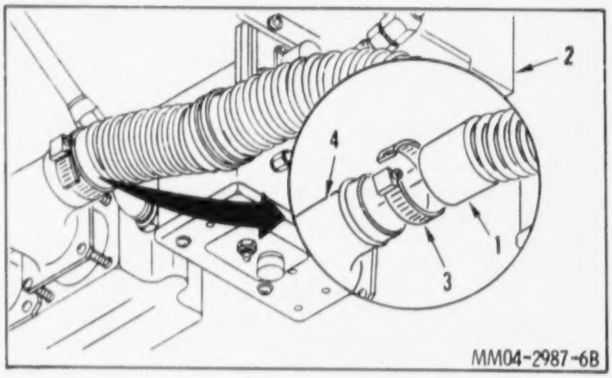
   g. Slide clamp (3) into position to secure hose (1) to vent (4). Tighten clamp (3).

2. **Inspect (TI).**

3. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).

4. **Install ammunition storage magazine** (TM 9-1090-208-23).

5. **Secure access panel R200** (para 2-2-2).



END OF TASK

10-2-113. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION 10-2-113

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Materials/Parts:

	Packing with Retainer (76)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

Equipment Conditions:

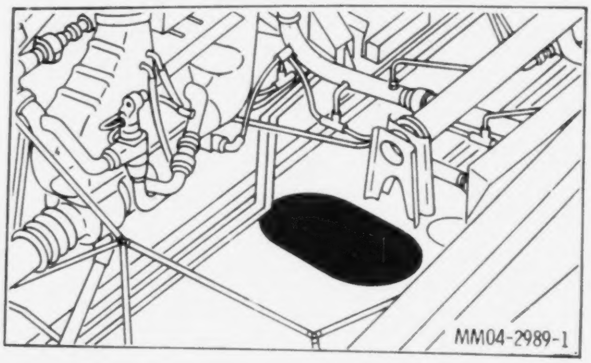
Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed
10-2-18	Aft fuel cell upper vent tube removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INST, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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10-2-113. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-113

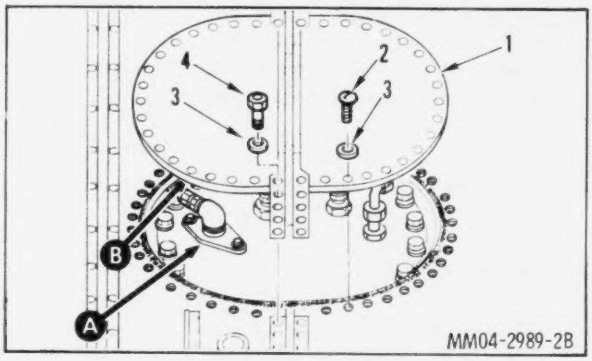
WARNING

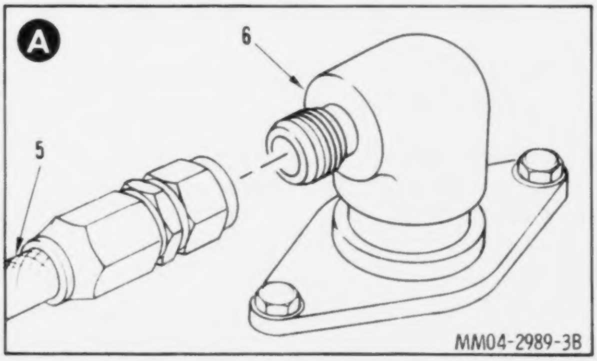
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

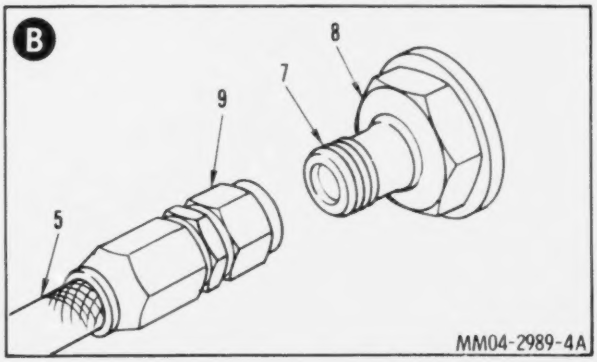
CAUTION

Jet fuel will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

4. **Remove aft fuel cell fuel access panel (1).**
   a. Remove sealing compound from around access panel (1).
   b. Remove 56 screws (2). Remove and discard 56 packings with retainer (3).
   c. Remove 20 bolts (4). Remove and discard 20 packings with retainers (3).
5. **Detach breakaway valve hose (5) from N_2 inert breakaway valve (6).**
6. **Detach other end hose (5) from bulkhead union (7).**
   a. Hold nut (8) of union (7).
   b. Loosen hose nut (9) from union (7).
   c. Remove hose (5).







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10-2-113. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-113

B. CLEANING

1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

2. **Clean sealing compound residue from access panel and mounting area on transmission deck** (para 1-5-36).

C. INSPECTION

1. **Check hose for cracks, splits, or damaged threads** (para 10-2-1).

2. **Check union and valve for nicks, dents, or damaged threads** (para 10-2-1).

3. **Check access panel for nicks, dents, or cracks** (para 10-2-1).

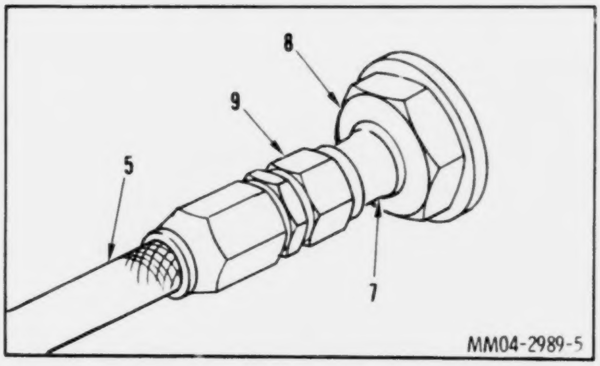
D. INSTALLATION

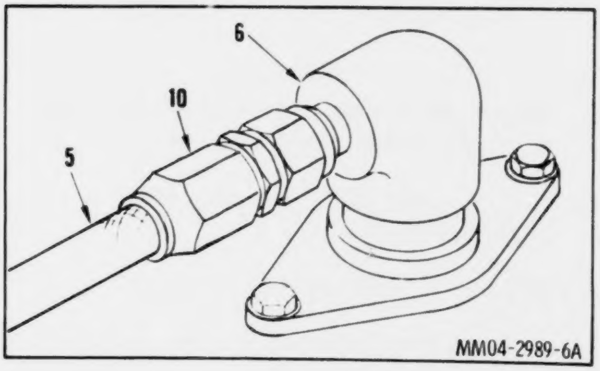
1. **Attach hose (5) to union (7).**

   a. Install hose nut (9) to union (7).

   b. Hold union nut (8) and tighten nut (9).

2. **Attach other end of hose (5) to valve (6).** Attach hose nut (10) to valve (6).





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10-2-113. AFT FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-113

3. **Inspect (TI).**

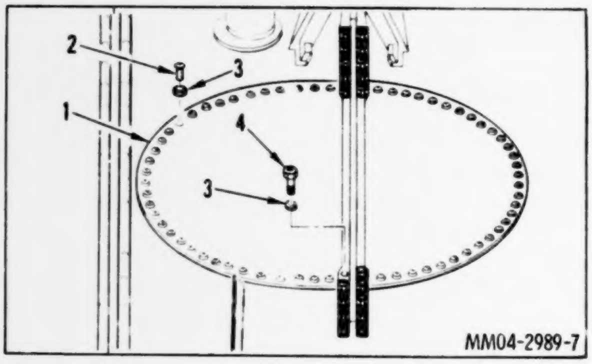
4. **Install aft fuel cell access panel (1).**

   a. Aline panel (1) with mounting holes in transmission deck.

   b. Lubricate 76 new packings with retainers (3). Use petrolatum (E16).

   c. Install 56 new packings with retainers (3) and 56 screws (2).

   d. Install 20 bolts (4) and 20 packings with retainers (3).



5. **Apply sealing compound as fillet seal to fuel access panel (1)** (TM 55-1500-204-25/1). Use sealing compound (E124).

6. **Inspect (TI).**

7. **Install aft fuel cell upper vent tube** (para 10-2-18).

8. **Perform fuel quantity indication/transfer operational check** (TM 55-1520-238-T).

9. **Secure access panel R200** (para 2-2-2).

END OF TASK

10-2-114. AFT FUEL CELL NITROGEN (N_2) INERT ORIFICE HOSE REMOVAL/INSTALLATION 10-2-114

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Crowfoot Attachment 13/16, 3/8 Drive	5120-00-184-8401
Wrench, Torque 3/8 Drive	5120-00-542-4489

Materials/Parts:

	Packing with Retainer (76)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
2-2-2	Access panel R200 removed and doors T25OL, T250R, T290L, T290R, and L35 opened
10-2-18	Aft fuel cell upper vent tube removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INSTR, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**

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10-2-114. AFT FUEL CELL NITROGEN (N_2) INERT ORIFICE HOSE REMOVAL/INSTALLATION (cont) 10-2-114

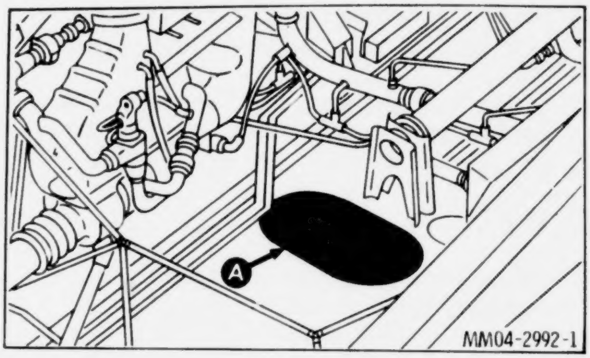
WARNING

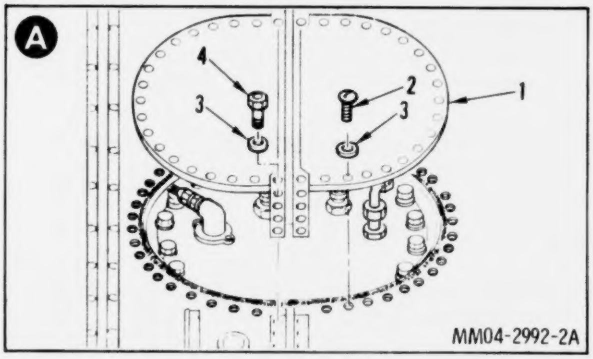
Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

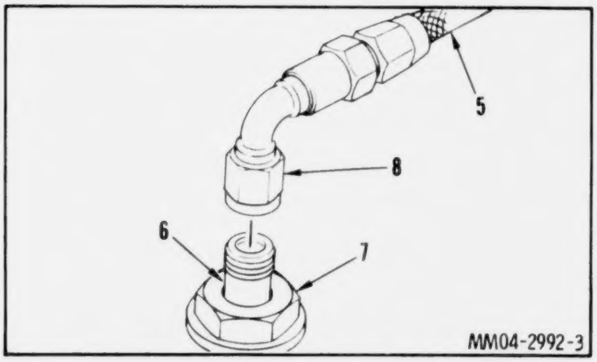
Jet fuel cell will cause fuel cell material to swell, delaminate, and leak if allowed to contact the fuel cell more than 72 hours. Keep jet fuel away from the outside of fuel cells.

4. **Remove aft fuel cell fuel access panel (1).**
   a. Remove sealing compound from around access panel (1).
   b. Remove 56 screws (2). Remove and discard 56 packings with retainers (3).
   c. Remove 20 bolts (4). Remove and discard 20 packings with retainers (3).





5. **Detach orifice hose (5) from N_2 inert orifice union (6).**
   a. Hold orifice union retaining nut (7).
   b. Loosen hose nut (8).
   c. Remove hose (5).



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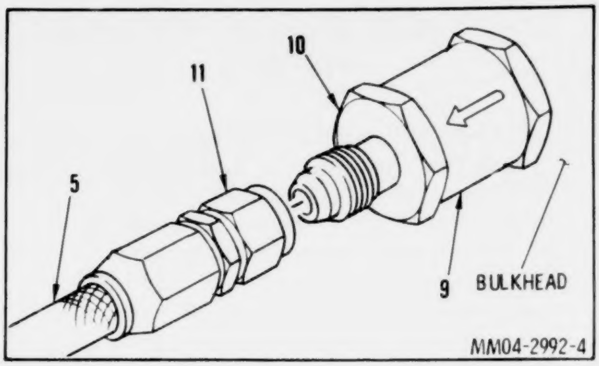
10-2-114. AFT FUEL CELL NITROGEN (N_2) INERT ORIFICE HOSE REMOVAL/INSTALLATION (cont) 10-2-114

6. **Detach other end of hose (5) from check valve (9) at bulkhead.**
   a. Hold check valve nut (10).
   b. Loosen nut (11) of hose (5).
   c. Remove hose (5).



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B. **CLEANING**

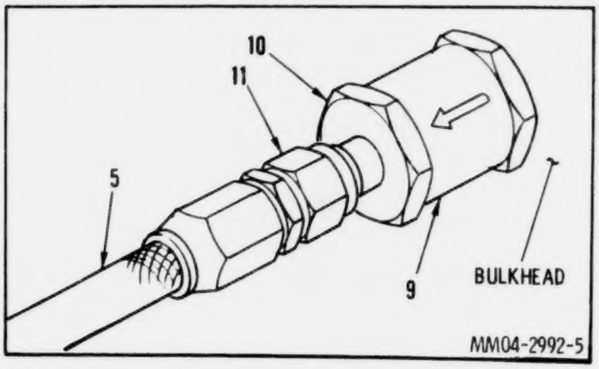
1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**
2. **Clean sealing compound residue from access panel and mounting area on transmission deck** (para 1-5-30).

C. **INSPECTION**

1. **Check hose for cracks, splits, or damaged threads** (para 10-2-1).
2. **Check union for nicks, dents, or damaged threads** (para 10-2-1). Check that union retaining nut is tight and holding union secure in cover.
3. **Check valve at bulkhead for nicks, dents, or damaged threads** (para 10-2-1). Check that valve is tight and secure in bulkhead.
4. **Check access panel for nicks, dents, or cracks** (para 10-2-1).

D. **INSTALLATION**

1. **Attach hose (5) to check valve (9) at bulkhead.** Torque nut (11) to **110 INCH-POUNDS.**
   a. Install hose nut (11) to valve nut (10).
   b. Hold valve nut (10) and tighten nut (11).
   c. Torque nut (11) to **110 INCH-POUNDS.** Use 13/16, 3/8 drive crowfoot.



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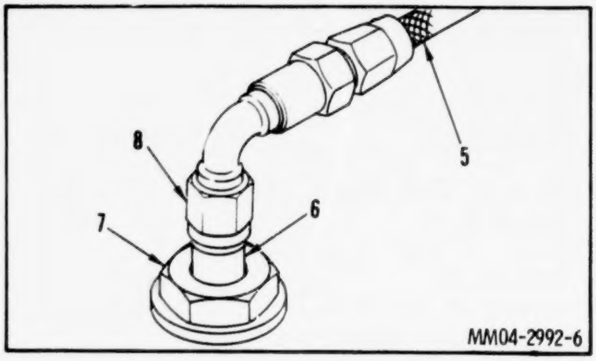
10-2-114. AFT FUEL CELL NITROGEN (N_2) INERT ORIFICE HOSE REMOVAL/INSTALLATION (cont) 10-2-114

2. **Install hose (5) to union (6).**

   a. Hold nut (7) of union (6).

   b. Install nut (8) to nut (7).



3. **Inspect (TI).**

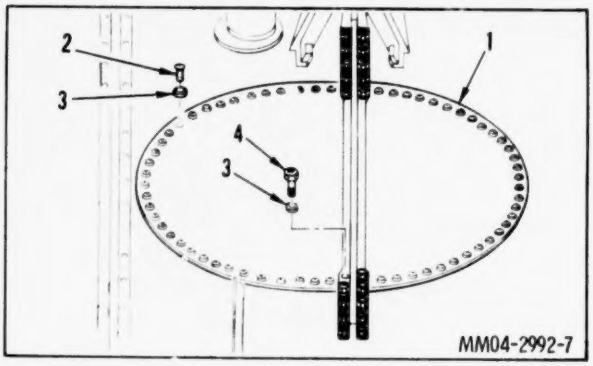
4. **Install panel (1).**

   a. Aline panel (1) with mounting holes in transmission deck.

   b. Lubricate 76 new packings with retainers (3). Use petrolatum (E16).

   c. Install 56 new packings with retainers (3) and 56 screws (2).

   d. Install 20 bolts (4) and 20 packings with retainers (3).



5. **Apply sealing compound as fillet seal to fuel access panel (1)** (TM 55-1500-204-25/1). Use sealing compound (E124).

6. **Inspect (TI).**

7. **Install aft fuel cell upper vent tube** (para 10-2-18).

8. **Perform fuel quantity indication/transfer operational check** (TM 55-1520-238-T).

9. **Secure access panel R200 and doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).

END OF TASK

10-2-115. AFT FUEL CELL NITROGEN (N_2) INERT CHECK VALVE REMOVAL/INSTALLATION 10-2-115

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Wrench, Torque, 3/8 Drive	5120-00-542-4489
Crowfoot Attachment, 13/16, 3/8 Drive	5120-00-184-8401

Materials/Parts:

	Packing with Retainer (81)
(E16)	Petrolatum
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1

Equipment Conditions:

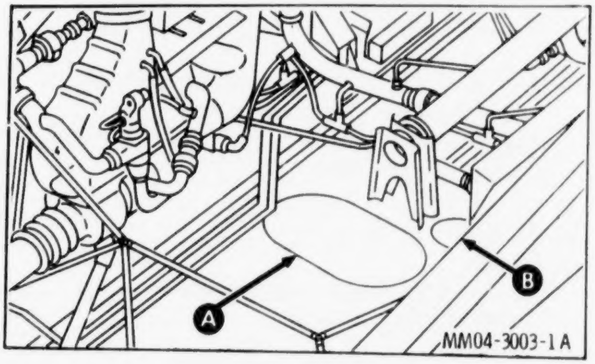
Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed and doors T250L, T250R, T290L, T290R, and L325 opened
10-2-18	Aft fuel cell upper vent tube removed

A. REMOVAL

1. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**

2. **Open ENG INSTR, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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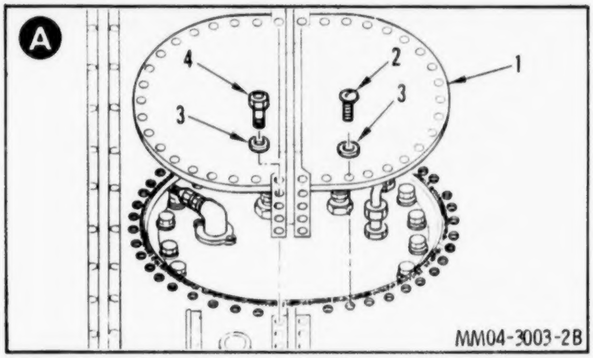
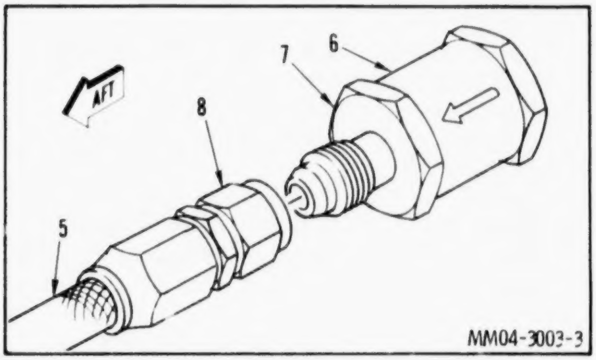
10-2-115. AFT FUEL CELL NITROGEN (N_2) INERT CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-115

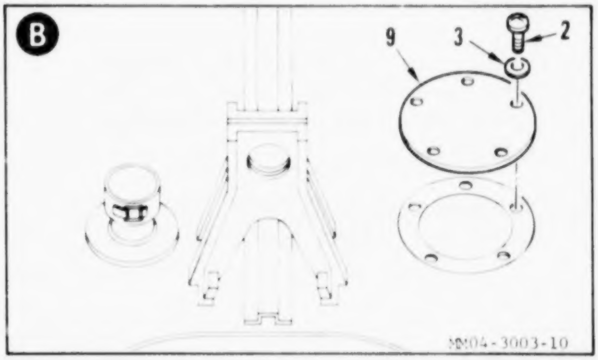
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

4. **Remove aft fuel cell fuel access panel (1).**
   a. Remove sealing compound from around panel (1).
   b. Remove 56 screws (2). Remove and discard 56 packings with retainers (3).
   c. Remove 20 bolts (4). Remove and discard 20 packings with retainers (3).
5. **On aft side of bulkhead, detach hose (5) from N_2 inert check valve (6).**
   a. Hold valve nut (7).
   b. Loosen nut (8) of hose (5).
   c. Remove hose (5) from valve (6).
6. **Remove access panel (9).**
   a. Remove fillet seal from around panel (9) and transmission deck.
   b. Remove five screws (2) and packings with retainers (3).
   c. Discard five packings with retainers (3).







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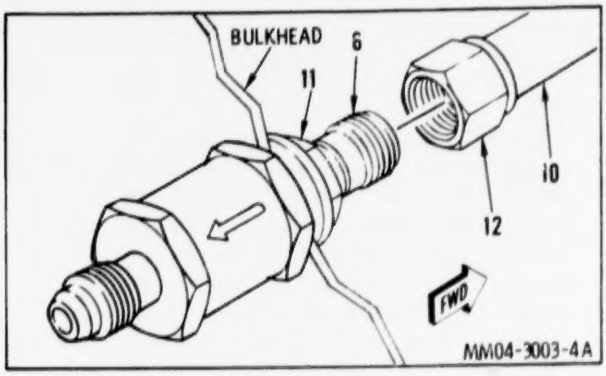
10-2-115. AFT FUEL CELL NITROGEN (N_2) INERT CHECK VALVE REMOVAL/INSTALLATION (cont)

7. **Detach tube (10) from check valve (6) on forward side of bulkhead.**

   a. Hold nut (11).

   b. Loosen nut (12) of tube (10).

   c. Remove tube (10) from valve (6).

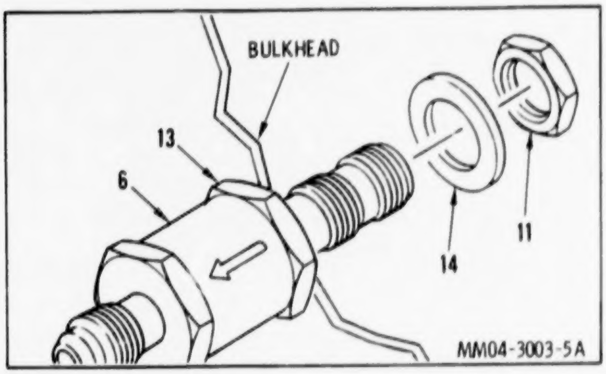


8. **Remove check valve (6) from bulkhead.**

   a. Hold valve nut (13).

   b. Remove nut (11) and washer (14) from forward side of bulkhead.

   c. Remove valve (6).



B. CLEANING

1. **Wipe all removed and attaching parts with a clean lint-free cloth (E32).**

2. **Clean sealing compound from access panel and mounting area on transmission deck** (para 1-5-30).

C. INSPECTION

1. **Check check valve for nicks, dents, cracks, or stripped threads** (para 10-2-1).

2. **Check check valve for corrosion** (para 1-5-38).

3. **Check hose for cracks or breaks.** Check hose nut and tube nut for nicks, dents or damaged threads (para 10-2-1).

4. **Check access panel for nicks, dents, or cracks** (para 10-2-1).

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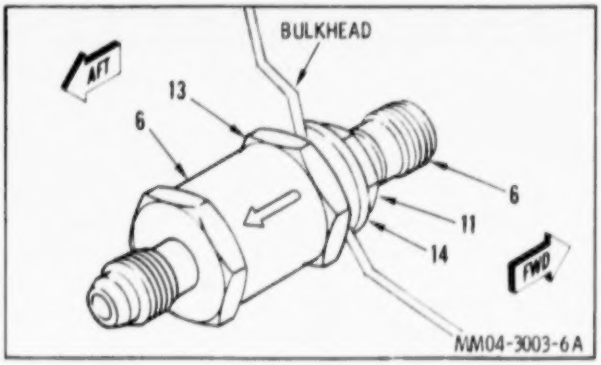
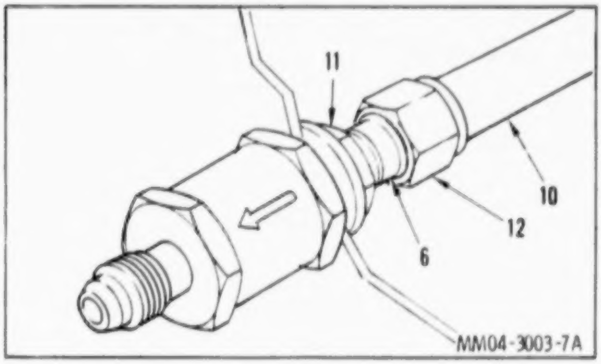
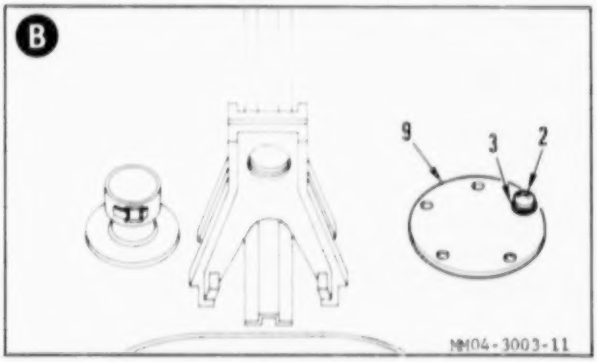
10-2-115. AFT FUEL CELL NITROGEN (N_2) INERT CHECK VALVE REMOVAL/INSTALLATION (cont) 10-2-115

D. INSTALLATION

1. **Place check valve (6) through mounting hole in bulkhead from aft side of bulkhead.** Make certain valve (6) arrow points aft. Torque nut (11) to **120 INCH-POUNDS.**
   a. Install washer (14) and nut (11) onto threads of valve (6) on forward side of bulkhead.
   b. Keep valve (6) in position by holding valve nut (13) on aft side of bulkhead.
   c. Tighten nut (11).
   d. Torque nut (11) to **120 INCH-POUNDS.** Use 13/16, 3/8 drive crowfoot.
2. **Attach tube (10) to check valve (6) on forward side of bulkhead.**
   a. Install nut (12) to protruding threads of valve (6).
   b. Hold nut (11). Tighten nut (12).
3. **Install access panel (9).**
   a. Aline panel (9) with transmission deck mounting holes.
   b. Lubricate five new packings with retainers (3). Use petrolatum (E16).
   c. Install five screws (2) through packings with retainers (3) into transmission deck.
4. **Apply sealing compound as fillet seal to panel (9)** (TM 55-1500-204-25/1). Use sealing compound (E124).







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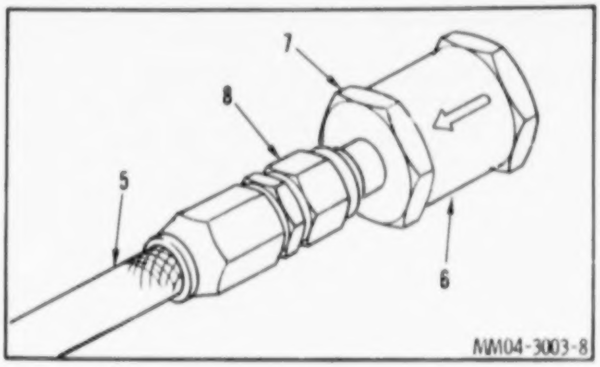
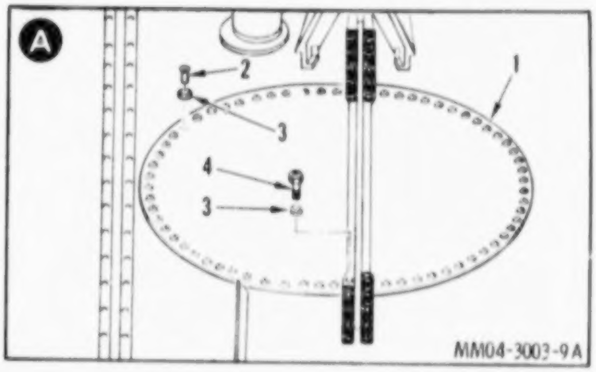
5. **Attach hose (5) to check valve (6).** Torque nut (8) to **110 INCH-POUNDS** on aft side of bulkhead.

   a. Attach nut (8) of hose (5) to valve (6).

   b. Hold valve nut (7) and tighten nut (8).

   c. Torque nut (8) to **110 INCH-POUNDS.** Use 13/16, 3/8 drive crowfoot.





6. **Inspect (TI).**

7. **Install aft fuel cell access panel (1).**

   a. Aline panel (1) with mounting holes in transmission deck.

   b. Lubricate 76 new packings with retainers (3). Use petrolatum (E16).

   c. Install 56 new packings with retainers (3) and screws (2).

   d. Install 20 new packings with retainers (3) and bolts (4).

8. **Apply sealing compound as fillet seal to panel (1)** (TM 55-1500-204-25/1). Use sealing compound (E124).

9. **Inspect (TI).**

10. **Install aft fuel cell upper vent tube** (para 10-2-18).

11. **Perform fuel quantity indication/transfer operational check** (TM 55-1520-238-T).

12. **Secure access panel R200 and doors T250L, T250R, T290L, T290R, and L325** (para 2-2-2).

END OF TASK

10-2-116. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION 10-2-116

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

	Packing with Retainer (8)
(E32)	Cloth, Lint-Free
(E124)	Sealing Compound

Personnel Required:

67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

References:

TM 55-1520-238-T
TM 55-1500-204-25/1
TM 9-1090-208-23-1

Equipment Conditions:

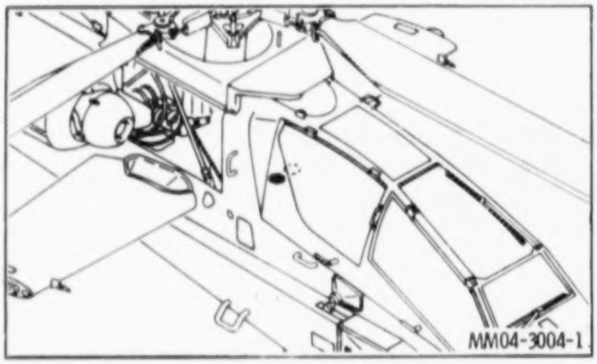
Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access panel R200 removed
TM 9-1090-208-23-1	Ammunition storage magazine removed

A. REMOVAL

1. **Enter pilot station (para 1-7-1). Observe all safety precautions.**

2. **Open ENG INSTR, FUEL XFEED, and FUEL XFER circuit breakers on center circuit breaker panel.**

3. **Open NITROGEN INERT circuit breaker on upper right corner of utility receptacle circuit breaker panel in main rotor transmission compartment R200.**



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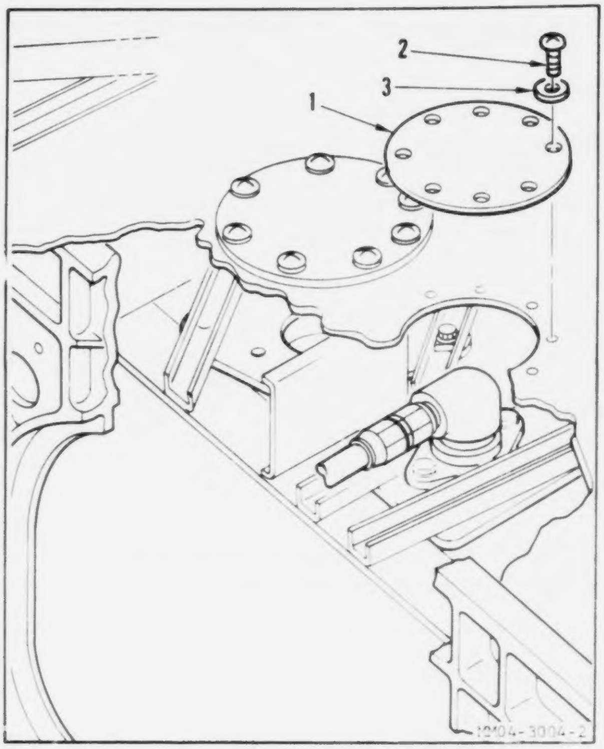
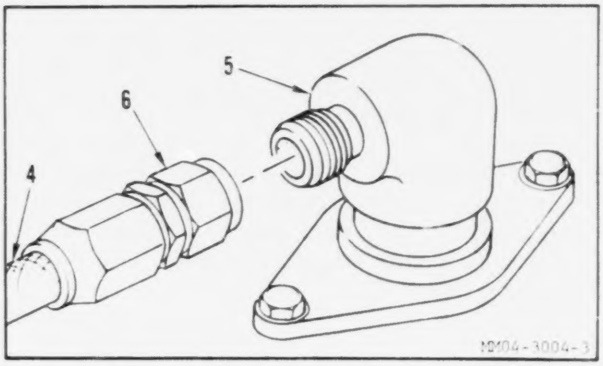
10-2-116. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-116

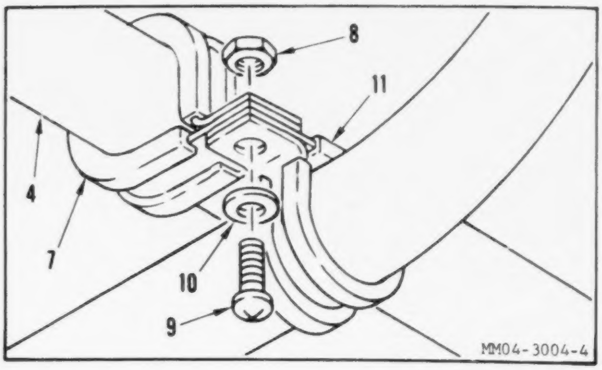
4. **Remove access cover (1) from transmission deck.** Remove eight screws (2) and packings with retainer (3). Discard packings with retainer.



5. **Detach breakaway valve hose (4) from N_2 inert breakaway valve (5).** Loosen and remove hose nut (6).



6. **Remove breakaway valve hose (4) from hose clamp (7) in ammunition bay.**
   - a. Hold nut (8).
   - b. Remove screw (9) and washer (10).
   - c. Remove hose clamp (7) from tube clamp (11).
   - d. Free hose (4) from clamp (7).



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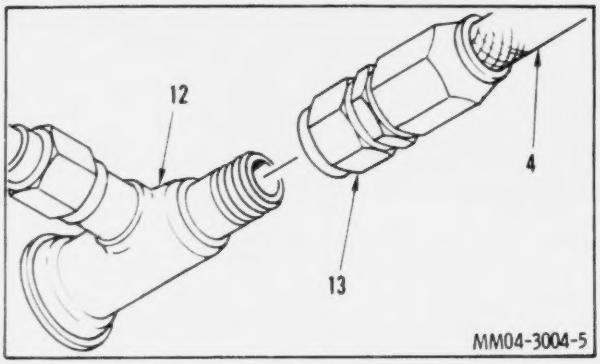
10-2-116. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-116

7. **Detach hose (4) from T-fitting (12) in ammunition bay.**

   a. Hold T-fitting (12) across flats.

   b. Remove hose nut (13).

   c. Remove hose (4).



B. **CLEANING**

1. **Wipe both ends of hose with a clean lint-free cloth (E32).**

2. **Wipe hose fitting of valve with a clean lint-free cloth (E32).**

3. **Wipe open hose end of T-fitting with a clean lint-free cloth (E32).**

4. **Clean sealing compound from access cover and mounting area on transmission deck** (para 1-5-36).

C. **INSPECTION**

1. **Check hose for cracks, splits, and clamp chafing.**

2. **Check valve hose nuts for nicks, dents, and damaged threads** (para 10-2-1).

3. **Check N_2 inert breakaway valve for damage and stripped threads** (para 10-2-1).

4. **Check hose clamp for damage.** Check mounting screw and nut for thread damage (para 10-2-1).

GO TO NEXT PAGE

10-2-116. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-116

5. **Check hose end of T-fitting (12) for thread damage.**

D. **INSTALLATION**

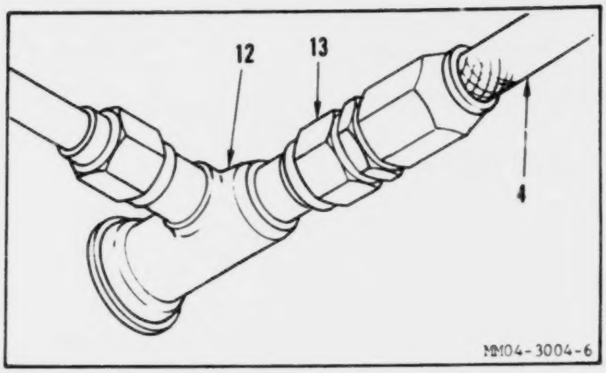
1. **Attach hose (4) to T-fitting (12) in ammunition bay.**

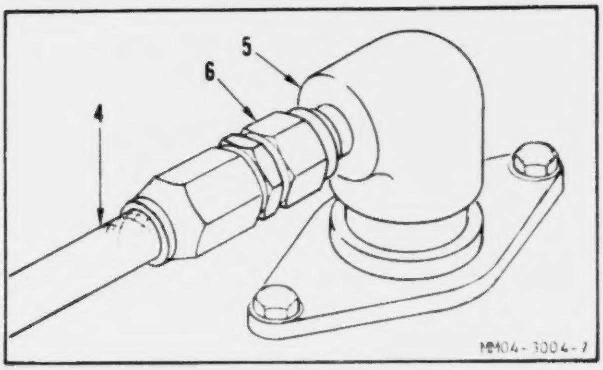
   a. Connect hose nut (13) to T-fitting (12).

   b. Hold T-fitting (12) across flats. Tighten nut (13). Use 13/16, 3/8 drive crowfoot.

   c. Pass hose (4) **OVER** tube that holds tube clamp (11).

2. **Attach other end of hose (4) to valve (5) on transmission deck.** Connect hose nut (6) to valve (5).





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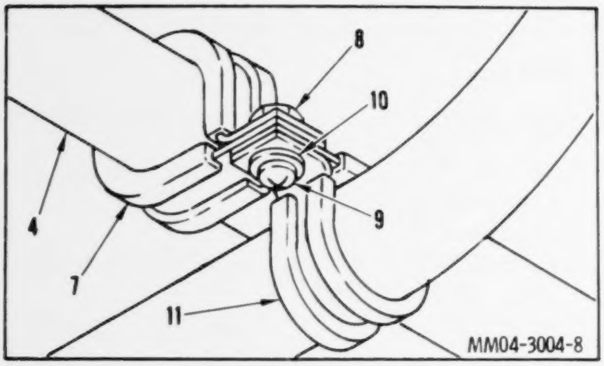
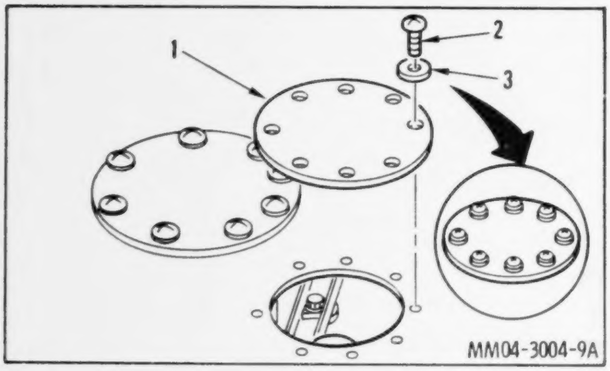
10-2-116. FORWARD FUEL CELL NITROGEN (N_2) INERT BREAKAWAY VALVE HOSE REMOVAL/INSTALLATION (cont) 10-2-116





3. **In ammunition bay, install hose (4) in hose clamp (7).**
   - a. Adjust hose (4) to find correct location for clamp (7).
   - b. Fit clamp (7) around hose (4).
   - c. Place washer (10) under head of screw (9).
   - d. Pass screw (9) through tube clamp (11) and clamp (7) as shown.
   - e. Attach and tighten nut (8) to screw (9).
4. **Inspect (TI).**
5. **Secure access cover (1).**
   - a. Lubricate eight new packings with retainer (3). Use petrolatum (E16).
   - b. Install eight screws (2) and packings with retainer (3) through cover (1).
6. **Apply sealing compound as fillet seal to access cover (1)** (TM 55-1500-204-25/1). Use sealing compound (E124).
7. **Inspect (TI).**
8. **Refuel aft fuel cell** (para 1-5-5).
9. **Perform nitrogen inerting system operational check** (TM 55-1520-238-T).
10. **Install ammunition storage magazine** (TM 9-1090-208-23-1).
11. **Secure access panel R200** (para 2-2-2).

END OF TASK

10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL 10-2-117

This task covers: A. PREPARATION B. ADAPTER HARNESS/TEST SET CALIBRATION
C. INSTALLATION D. REMOVAL

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer	5180-00-323-4915
Fuel Quantity Test Set (TF-579)	4920-00-109-5066
Adapter Harness, Power	6150-00-937-0520
Cable, Adapter	6150-00-937-0520
Adapter, Harness	1560-01-082-9216
Cable, Ground	6625-00-878-3600
Lead, Ground	6625-00-810-6256
Jumper Assembly	5995-00-810-6536

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

Ref	Condition
1-5-8	Helicopter defueled (SPA) method
1-7-2	Helicopter safed
2-2-2	Access doors R190, R295, and R345 opened; L40 and B60R removed
10-2-2	Fuel system safety precautions observed

A. PREPARATION

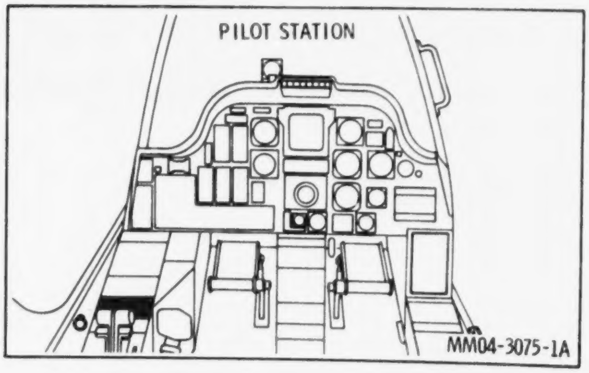
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

CAUTION

The fuel quantity test set (TF579) operates from a 400 Hz, single-phase source. The test set can be damaged if connected to 60 Hz power source. Verify that test set is properly grounded before applying power. Do not operate an ungrounded test set.

1. **Verify helicopter is properly grounded.** Use jumper (para 1-7-9).
2. **Enter pilot station** (para 1-7-1). **Observe all safety precautions.**



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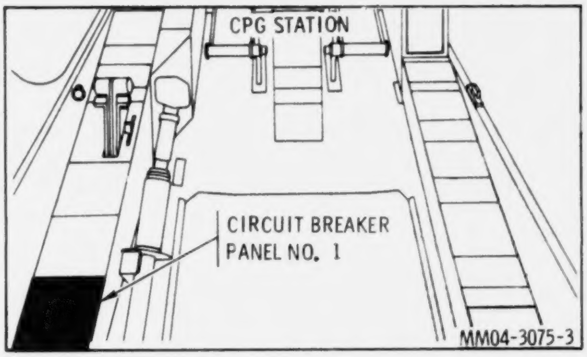
10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

3. Ensure FAB FANS, CAB, XFMR RECT 1, and XFMR RECT 2 circuit breakers are closed on pilot aft circuit breaker panel.

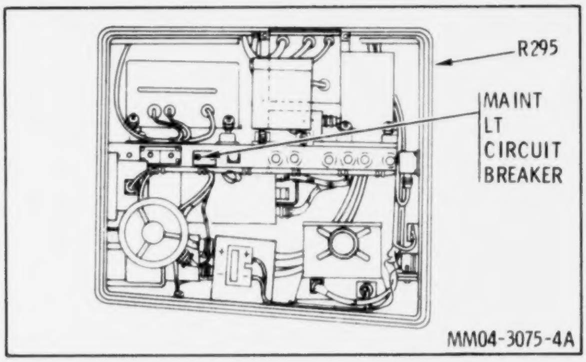
4. Ensure CAUT, UTIL SEC, and ENG INST circuit breakers are closed on pilot center circuit breaker panel.

5. Enter CPG station (para 1-7-1). Observe all safety precautions.

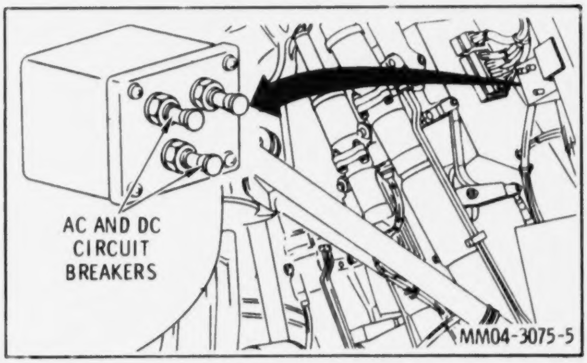
6. Ensure CAUT, UTIL SEC, and ENG INST circuit breakers are closed on CPG left console circuit breaker panel No. 1.


CPG STATION
CIRCUIT BREAKER PANEL NO. 1
MM04-3075-3

7. Ensure MAINT LT circuit breaker is closed in aft avionics bay (R295).


R295
MAINT LT CIRCUIT BREAKER
MM04-3075-4A

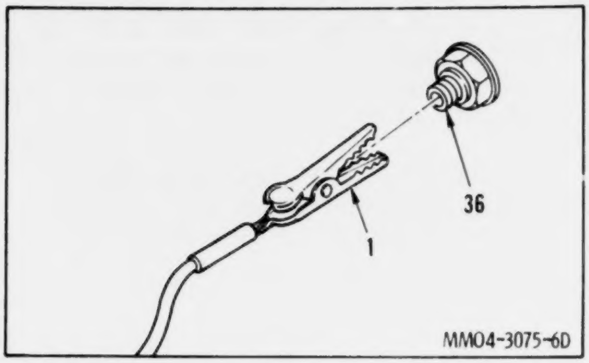
8. Ensure AC and DC ELEC UTIL PWR circuit breakers are closed in right transmission bay (R190).


AC AND DC CIRCUIT BREAKERS
MM04-3075-5

GO TO NEXT PAGE

10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

9. **Attach test set ground cable (1) to helicopter ground (36).**



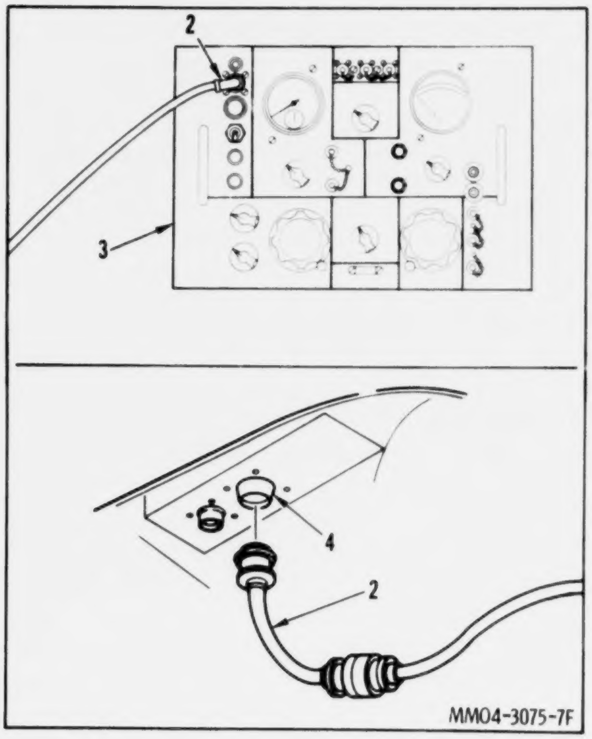
10. **Attach harness adapter power cable (2) to 115V 400-cps power cable receptacle on fuel quantity test set (3).**

11. **Attach adapter power cable (2) to ground service utility receptacle (4) through access B60R.**

CAUTION

Verify helicopter is clear for power application.

12. **Apply external electrical power** (para 1-7-16).



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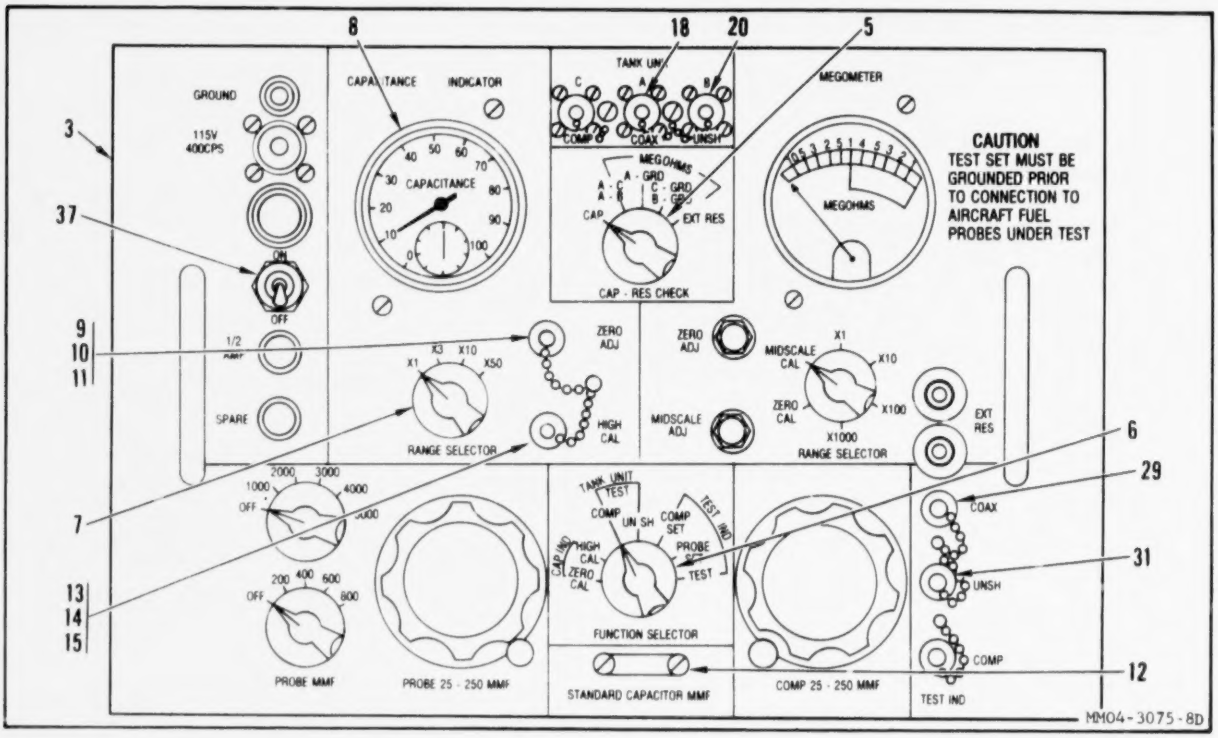
10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117


8
18
20
5
3
37
9
10
11
7
13
14
15
6
29
31
12
GROUND
115V 400CPS
ON
OFF
1/2 AMP
SPARE
CAPACITANCE INDICATOR
CAPACITANCE
0
10
20
30
40
50
60
70
80
90
100
TANK UNIT
C
A
B
COMP
COAX
UNSH
MEGOHMS
A - GRD
A - C
A - B
C - GRD
B - GRD
CAP
EXT RES
CAP - RES CHECK
MEGOMETER
MEGOHMS
CAUTION
TEST SET MUST BE GROUNDED PRIOR TO CONNECTION TO AIRCRAFT FUEL PROBES UNDER TEST
ZERO ADJ
HIGH CAL
X1
X3
X10
X50
RANGE SELECTOR
ZERO ADJ
MIDSCALE ADJ
MIDSCALE CAL
ZERO CAL
X1
X10
X100
X1000
RANGE SELECTOR
EXT RES
COAX
UNSH
COMP
TEST IND
OFF
1000
2000
3000
4000
5000
OFF
200
400
600
800
PROBE MMF
PROBE 25 - 250 MMF
TANK UNIT TEST
COMP
UN SH
COMP SET
TEST IND
PROBE SET
TEST
CAP IND
HIGH CAL
ZERO CAL
FUNCTION SELECTOR
STANDARD CAPACITOR MMF
COMP 25 - 250 MMF
MM04-3075-8D

B. **ADAPTER HARNESS/TEST SET CALIBRATION**

NOTE

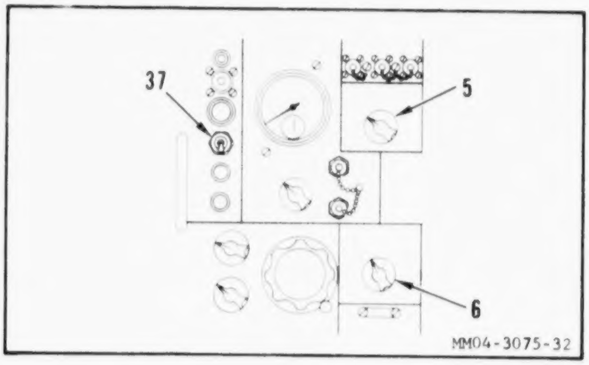
When power is removed from test set, reading displayed on CAPACITANCE INDICATOR may not return to zero. No damage will result to the test set.

1. **Fuel Quantity Test Set (3) Calibration.**

   a. Set test set (3) power ON/OFF switch (37) to ON. Allow test set (3) to warm up for **FIVE MINUTES.**

   b. Set CAP-RES CHECK switch (5) to CAP position.

   c. Set FUNCTION SELECTOR switch (6) to CAP IND ZERO CAL.


37
5
6
MM04-3075-32

GO TO NEXT PAGE

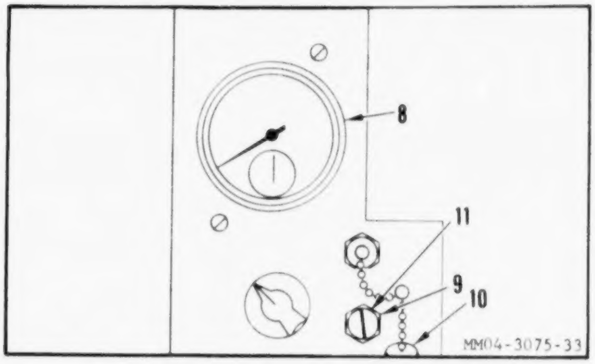
10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

d. Set RANGE SELECTOR (7) to XI.

NOTE

Make all adjustments using insulated screwdrivers.

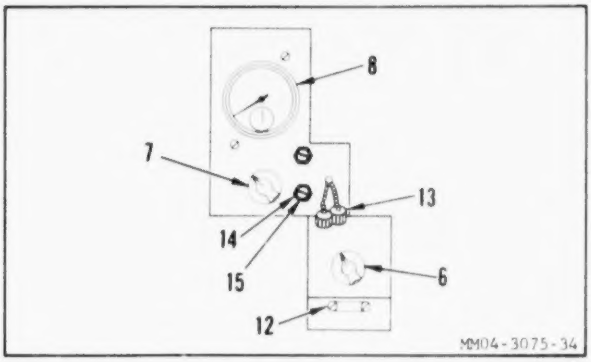
e. Check that CAPACITANCE INDICATOR (8) reads 0 UUF. If not, remove protective cap (9) from ZERO ADJ control (10), and adjust control screw (11) until reading is 0 UUF exactly.



f. Inspect (TI).

g. Set FUNCTION SELECTOR switch (6) to CAP IND HIGH CAL.

h. Set RANGE SELECTOR switch (7) to X50.



NOTE

Nameplate capacitance value must be divided by 50 then compared to indicated value.

i. Check that CAPACITANCE INDICATOR (8) reads value stamped on STANDARD CAPACITOR MMF NAMEPLATE (12) divided by 50. If not, remove protective cap (13) from HIGH ADJ control (14), and adjust control screw (15) until reading is exactly equal to nameplate value divided by 50.

j. Repeat substeps b. through i. as often as is necessary to obtain proper readings.

GO TO NEXT PAGE

10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

k. Inspect (TI).

l. Install protective caps (9) and (13) on ZERO ADJ control (10) on HIGH ADJ control (14).

m. Set FUNCTION SELECTOR switch (6) to CAP IND ZERO CAL.

n. Set RANGE SELECTOR switch (7) to X1.

2. **Check harness adapter (16) lead capacitance.**

a. On test set (3), remove test set protective caps (17) from TANK UNIT COAX A connector (18) and (19) from TANK UNIT UNSH B connector (20).

b. Attach adapter TANK TEST cable (21) to connector (18).

c. Attach wire (22) to connector (20).

CAUTION

Do not make connections to adapter connectors J1 and P1 at this time.

d. Attach ground lead (23) to adapter (16) and helicopter ground terminal.

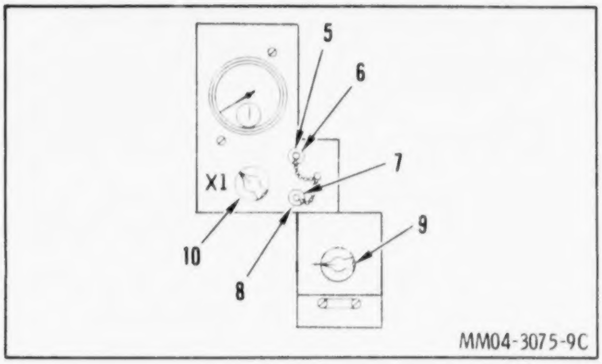
e. On adapter harnes (16), set adapter FUNCTION switch (24) to TEST.

f. Set TANK SELECT switch (25) to TANK 1.

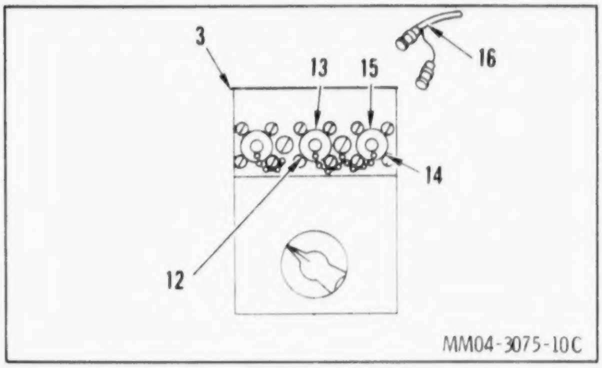
g. On test set (3), place FUNCTION SELECTOR switch (6) to TANK UNIT TEST UNSH.

h. Set CAP-RES CHECK switch (5) to CAP.

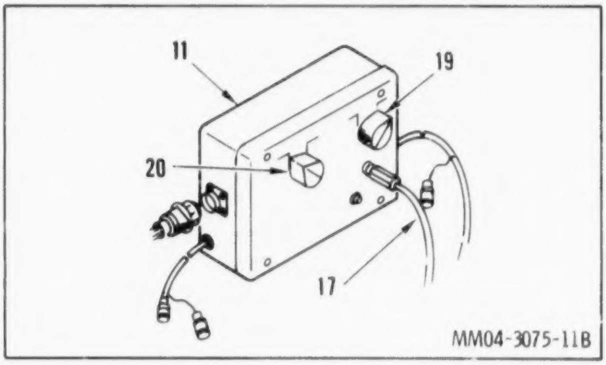
i. Set RANGE SELECTOR switch (7) to lowest multiplier setting that allows an on-scale reading.



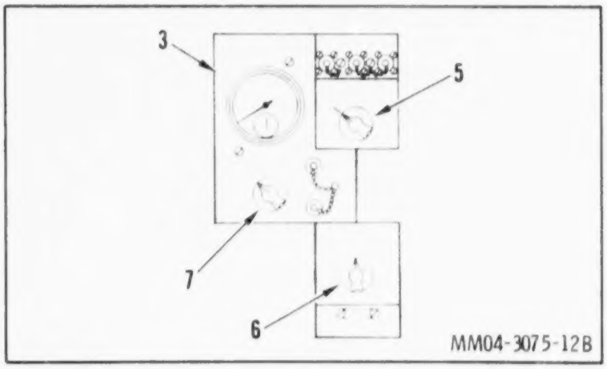
MM04-3075-9C



MM04-3075-10C



MM04-3075-11B



MM04-3075-12B

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10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

j. Record reading from CAPACITANCE INDICATOR (8). This is TANK 1 adapter tank loop capacitance.

k. Inspect (TI).

l. On adapter harness (16), set TANK SELECT switch (25) to TANK 2.

m. Turn RANGE SELECTOR switch (7) to lowest multiplier setting that allows an on-scale reading.

n. Record reading from CAPACITANCE INDICATOR (8). This is TANK 2 adapter tank loop capacitance.

o. Inspect (TI).

p. Detach cable (21) from connector (18).

q. Detach wire (22) from connector (20).

r. Attach adapter cable (26) to connector (18).

s. Attach wire (27) to connector (20).

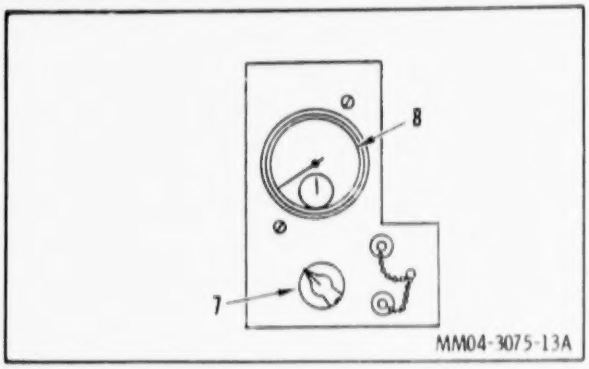
t. Repeat steps d. thru j.

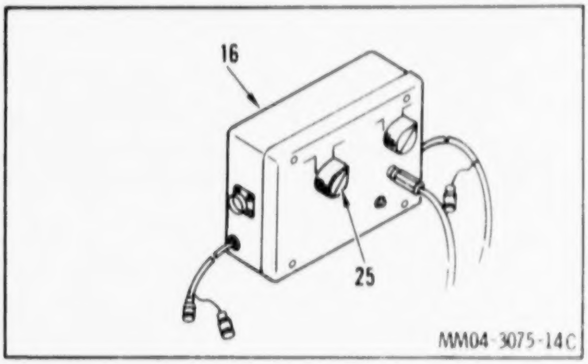
u. Record reading from CAPACITANCE INDICATOR (8). This is TANK 1 and TANK 2 IND TEST lead capacitance.

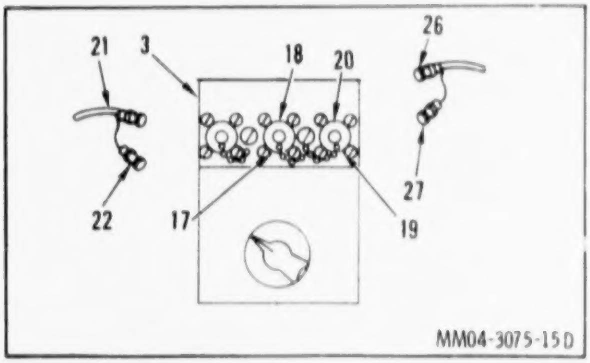
v. Inspect (TI).

w. Detach cable (26) from connector (18).

x Detach wire (27) from connector (20).







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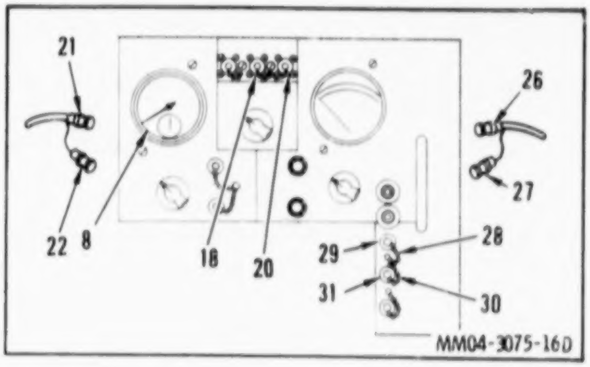
10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117



y. Remove protective caps (28) and (30) from TEST IND COAX connector (29) and TEST IND UNSH connector (31).

z. Attach cable (26) to connector (29).

aa. Attach wire (27) to connector (31).

ab. Attach cable (21) to connector (18).

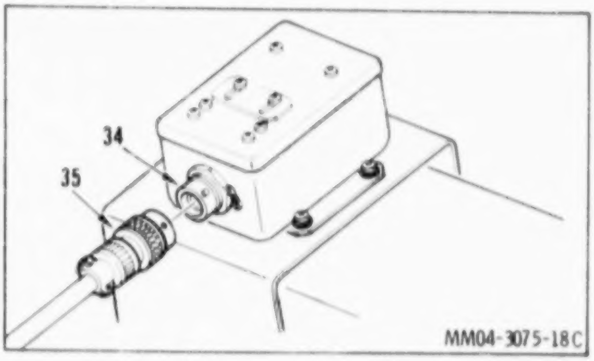
ac. Attach wire (22) to TANK UNIT UNSH B connector (20).

3. **Open ENG INST circuit breaker on pilot center circuit breaker panel.**

4. **Open ENG INST circuit breaker on CPG circuit breaker panel No. 1.**

C. INSTALLATION

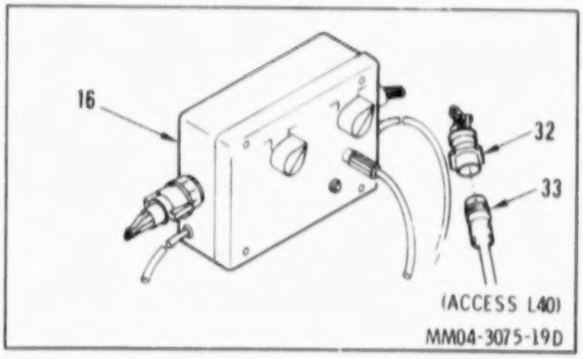
1. **Attach connector A308J1 (32) to helicopter wiring harness connector P937 (33).** Attach P134 (35) to adapter helicopter connector J1 (34).



2. **On pilot center circuit breaker panel, close ENG INST circuit breaker.**

3. **On CPG circuit breaker panel No. 1, close ENG INST circuit breaker.**

4. **Perform fuel quantity indication/ transfer operational check** (TM 55-1520-238-T).



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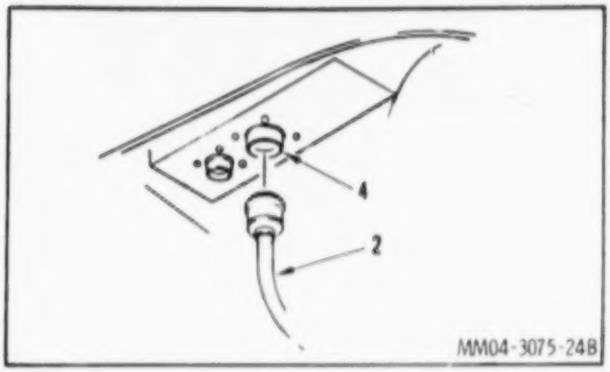
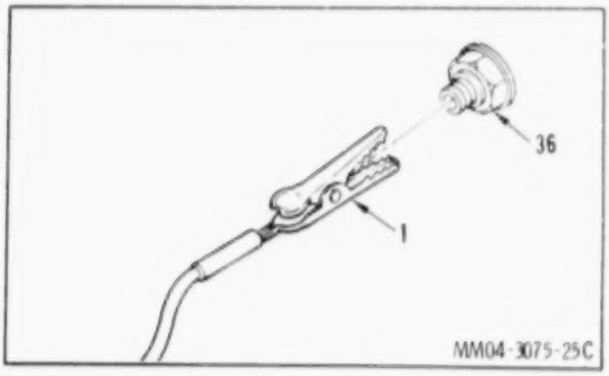
10-2-117. FUEL QUANTITY INDICATOR TEST SET INSTALLATION/REMOVAL (cont) 10-2-117

D. REMOVAL

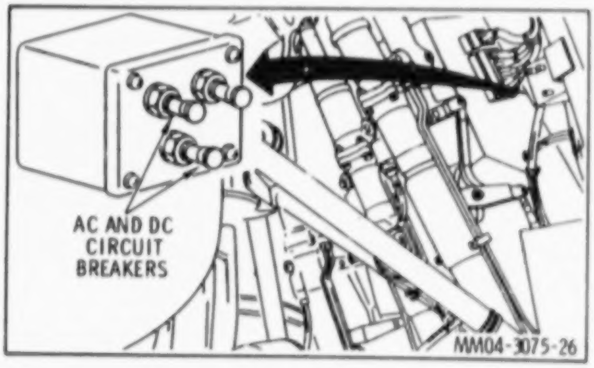
1. Set test set power switch (37) to OFF.
2. Remove external electrical power from helicopter (para 1-7-16).
3. Disconnect harness adapter cable (2) from ground service utility receptacle (4).


4
2
MM04-3075-24B

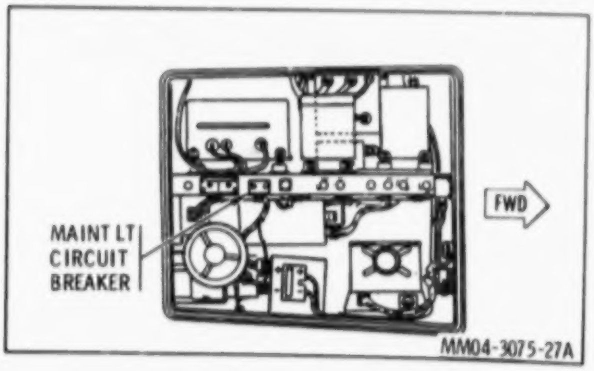
4. Detach ground cable (1) at helicopter ground from adapter (36).


36
1
MM04-3075-25C

5. Open AC and DC ELEC UTIL PWR circuit breakers in right transmission bay R190.


AC AND DC CIRCUIT BREAKERS
MM04-3075-26

6. Open MAINT LT circuit breaker in aft avionics bay R295.


MAINT LT CIRCUIT BREAKER
FWD
MM04-3075-27A

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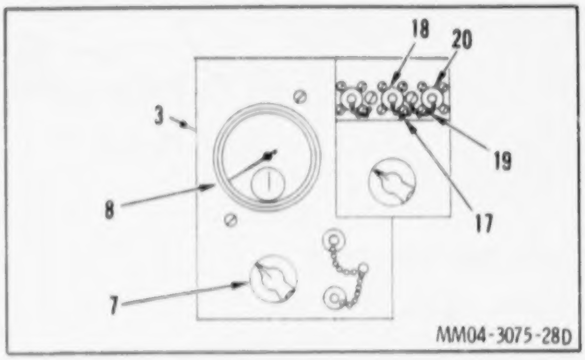
7. **On test set (3), detach cables from connectors (18) and (20).** Replace protective caps (17) and (19).


18
20
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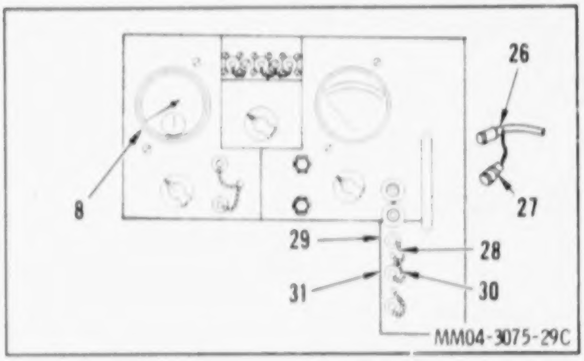
8
17
7
MM04-3075-28D

8. **Detach test set TANK IND cables (26) and (27) from connectors (29) and (31).** Attach caps (28) and (30) on connectors (29) and (31).

9. **Detach cable (2) from test set (3).**

10. **Secure access doors L40, B60R, R190, R295, and R345** (para 2-2-2).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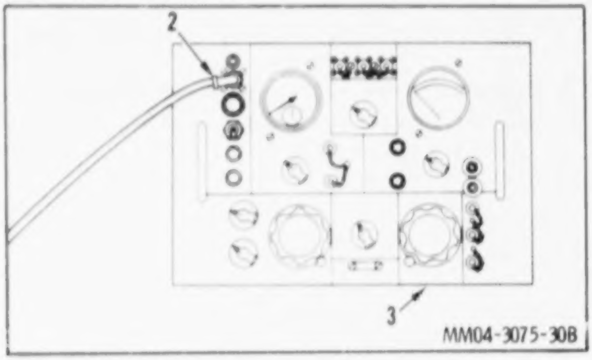
MM04-3075-29C


2
3
MM04-3075-30B

END OF TASK

10-2-118. FUEL SIGNAL CONDITIONER ADJUSTMENT 10-2-118

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Electrical Repairer	5180-00-323-4915

Personnel Required:

68F10	Aircraft Electrician
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T

Equipment Conditions:

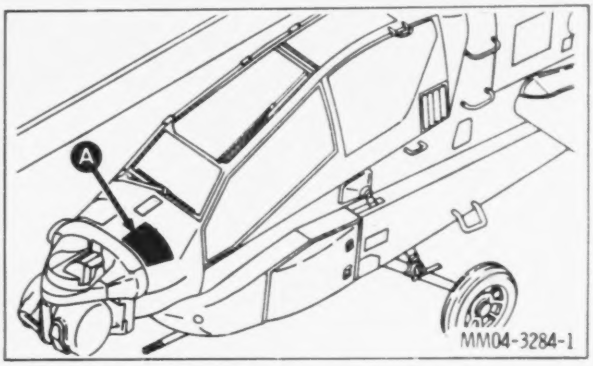
Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
2-2-2	Access doors R190, R295, and R345 opened; L40 and B60R removed
10-2-117	Fuel quantity test set calibrated and installed
10-2-2	Fuel system safety precautions observed

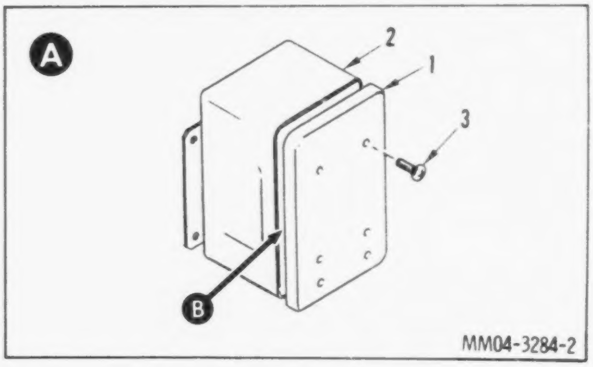
ADJUSTMENT

NOTE

Some fuel signal conditioner covers have slots to allow adjustment without removing the cover. Start adjustment with step 2 on this type.

1. **Remove cover (1) from fuel signal conditioner (2).** Remove six screws (3) and cover (1).





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10-2-118. FUEL SIGNAL CONDITIONER ADJUSTMENT (cont) 10-2-118

2. ZERO ADJUSTMENT: Rotate either potentiometer TK1-E or TK2-E counterclockwise to decrease or clockwise to increase indication.

3. Inspect (TI).

4. FULL ADJUSTMENT: Rotate either potentiometer TK1-F or TK2-F counterclockwise to decrease or clockwise to increase indication.

5. Inspect (TI).

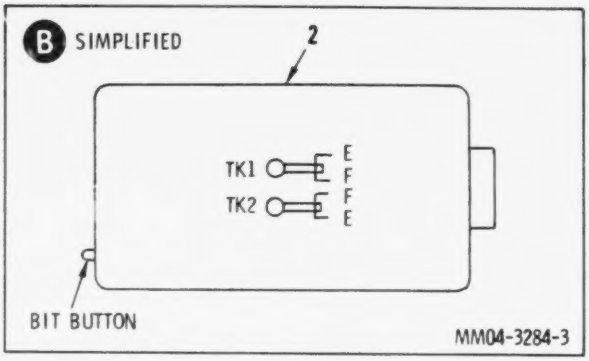
6. Torque-stripe potentiometers adjusted in steps 2 and 4.

7. Reinstall cover (1) on fuel signal conditioner (2). Position cover (1) and install six screws (3).

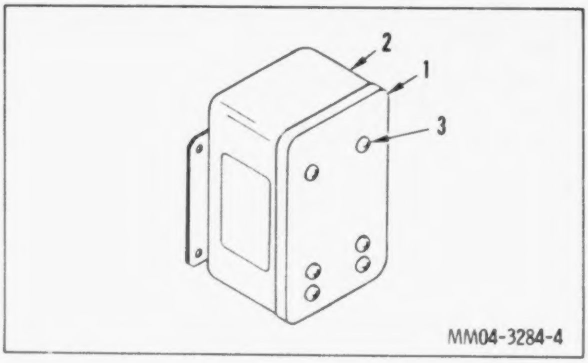
8. Complete fuel quantity indication/transfer operational check (TM 55-1520-238-T).

9. Remove fuel quantity indicator test set (para 10-2-117).

10. Secure access doors R190, R295, R345, L40, and B60R (para 2-2-2).



MM04-3284-3



MM04-3284-4

END OF TASK

Section III. FUEL CELL MAINTENANCE

10-3-1. FORWARD FUEL CELL REMOVAL 10-3-1

This task covers: A. REMOVAL B. CLEANING C. INSPECTION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Removal and Installation, Fuel Cell	1560-01-181-9274
Cleaner, Vacuum, Pneumatic	7910-009-807-3704

Materials/Parts:

(E32) Cloth, Lint-Free
(E41) Tape, Duct
(E51) Oil

Personnel Required:

67R10 Attach Helicopter Repairer (3)
Two to assist

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
1-5-8	Helicopter defueled (SPA) method
10-2-2	Fuel system safety precautions observed
10-2-4	Forward poppet draincock removed
10-2-64	Forward fuel cell lightning arrestor removed
10-2-19	Forward fuel cell forward access cover removed
10-2-37	Forward fuel cell vent tube removed
10-2-16	Forward fuel cell vent tube adapter removed
10-2-26	Forward fuel cell fuel shutoff valve removed
10-2-36	Forward fuel cell refueling hose removed
10-2-33	Forward fuel cell fuel/defuel valve removed
10-2-22	Forward fuel cell pilot valve hose removed
10-2-23	Forward fuel cell level control pilot valve removed
10-2-21	Forward fuel cell check/thermal relief valve removed
10-2-35	Forward fuel cell engine fuel supply hose removed
10-2-25	Forward fuel cell aft fuel quantity transmitter removed
10-2-27	Forward air vent/pressure relief valve removed
10-2-28	Forward fuel cell engine supply breakaway valve removed
10-2-29	Forward fuel cell refueling breakaway valve removed

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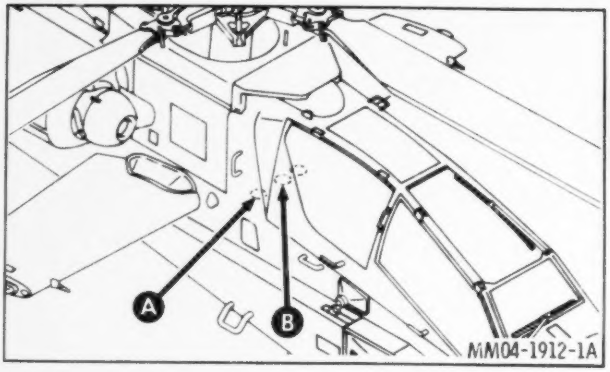
10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

A. REMOVAL

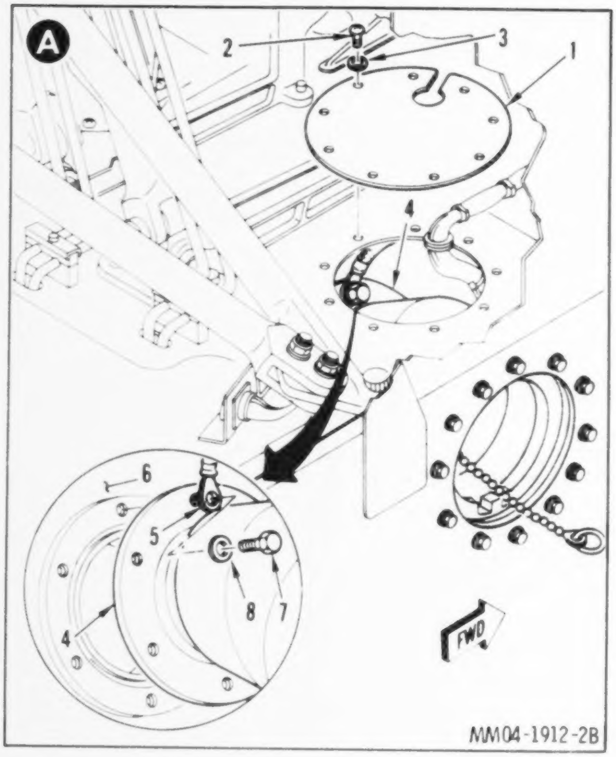


WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove access door (1) from transmission deck.** Remove nine screws (2) and packings with retainer (3).

2. **Detach filler neck (4) and grounding strap (5) from fuel cell (6).** Remove six bolts (7), washers (8), and grounding strap (5).



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10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

3. **Remove access cover (10) from transmission deck.** Remove eight screws (11) and washers (12).

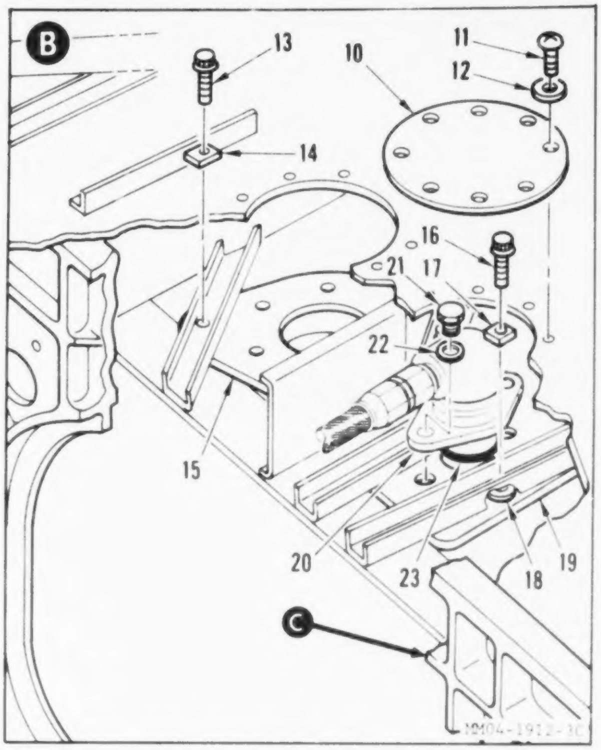
4. **Remove two bolts (13) and washers (14) from vent tube adapter mounting pad (15).**

5. **Remove two bolts (16), rectangular washers (17), and flat washers (18) from pilot valve mounting pad (19).**

6. **Remove fuel cell breakaway valve (20) from pad (19).**

   a. Remove two bolts (21) and washers (22).

   b. Remove and discard packing (23).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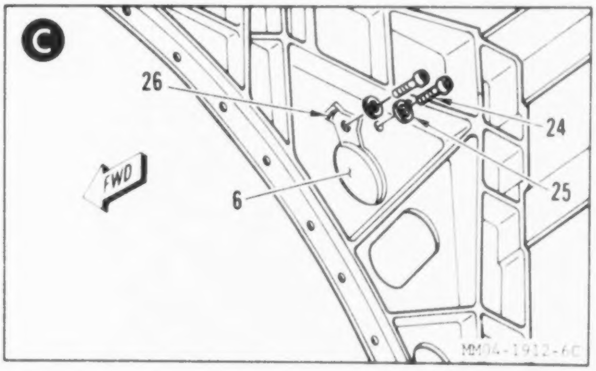
MM04-1912-1C

7. **Remove two bolts (24) and washers (25) that attach fuel cell (6) to refueling breakaway valve mounting pad (26) in ammunition bay.**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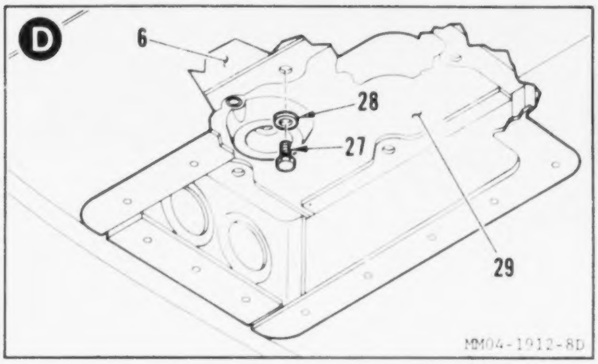
MM04-1912-6C

GO TO NEXT PAGE

10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

8. **Remove four bolts (27) and washers (28) that attach fuel cell (6) to drain valve mounting pad (29).**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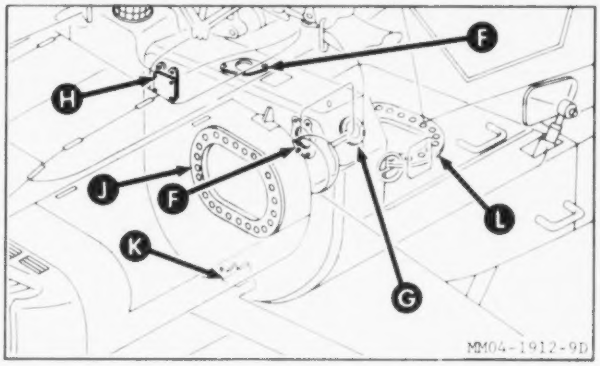
MM04-1912-8D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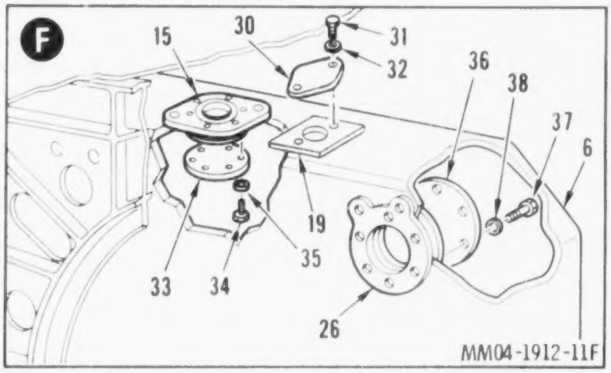
NOTE

Steps 9 thru 16 install seven covers and one plug. To install covers, use bolts and washers that were used to attach parts removed from fuel cell.

9. **Install cover plate (30) on pad (19) on transmission deck.** Install two bolts (31) through two washers (32).

10. **Install cover plate (33) on pad (15).** Install six bolts (34) through six washers (35) and plate (33) into pad (15).

11. **Install cover plate (36) on pad (26).** Install six bolts (37) through six washers (38), plate (36), and cell (6) into pad (26).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MM04-1912-11F

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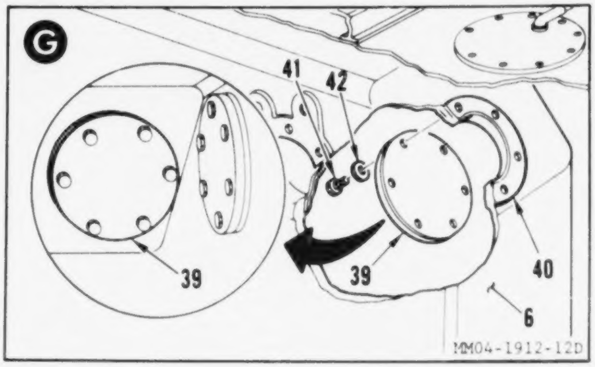
12. **Install cover plate (39) on filler neck pad (40) inside fuel cell (6).** Install six bolts (41) through six washers (42) and plate (39) into pad (40).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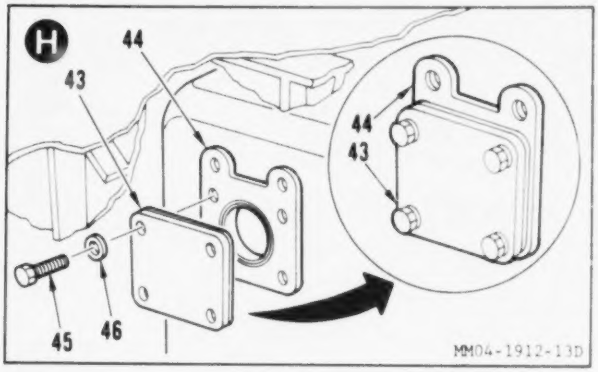
MM04-1912-12D

13. **Install cover plate (43) on engine fuel breakaway valve pad (44) from ammunition bay.** Install four bolts (45) through four washers (46) and plate (43) into pad (44).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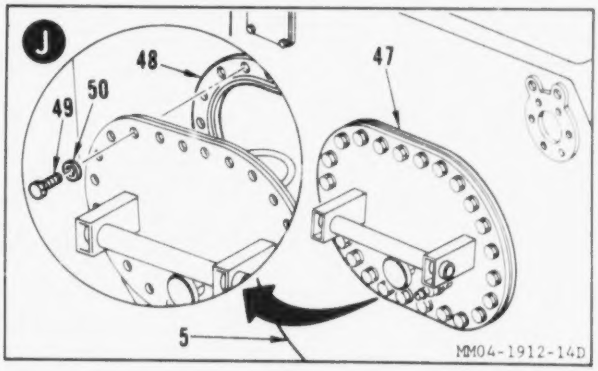
MM04-1912-13D

14. **Install cover plate (47) on aft access cover pad (48) from ammunition bay.** Install 24 bolts (49) through 24 washers (50) and plate (47) into pad (48).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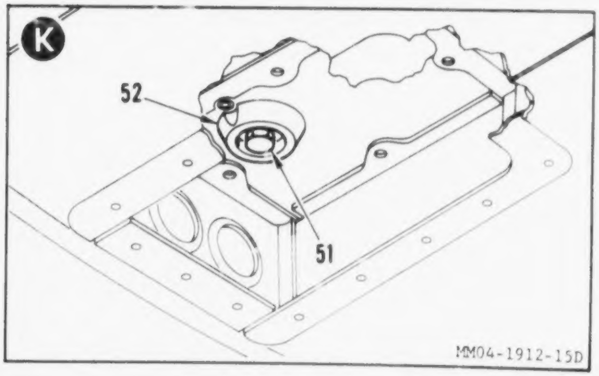
15. **Install plug (51) in drain valve fitting (52).**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MM04-1912-15D

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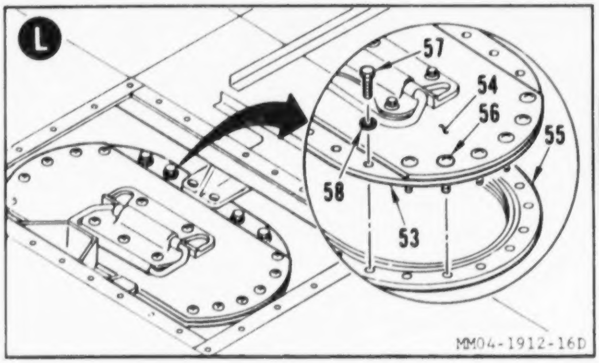
10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

16. **Install cover plate (53) and handle (54) on forward access cover pad (55) on transmission deck.**

    a. Install 12 captive screws (56).

    b. Install eight bolts (57) through eight washers (58) and plate (53) into pad (55).

    c. Install four bolts (59) through four washers (60) under brackets (61).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MM04-1912-16D

17. **Exhaust air from fuel cell (6).**

    a. Install vacuum adapter (62) on quick-disconnect plug (63).

    b. Connect vacuum cleaner hose (64) to adapter (62).

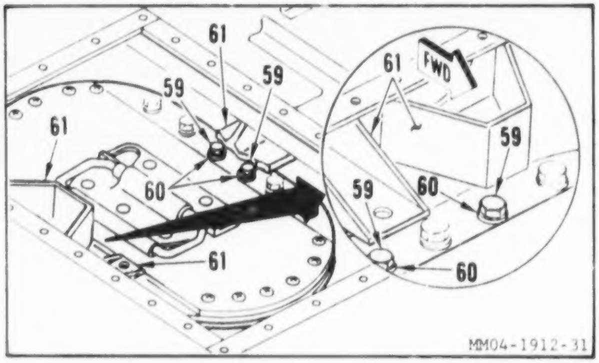
    c. Turn shutoff valve knob (65) counterclockwise to open valve (66).

    d. Start vacuum cleaner (67) to exhaust air from fuel cell (6).

    e. Turn knob (65) clockwise to close valve (66). Stop vacuum cleaner (67).

    f. Disconnect hose (64) from adapter (62).

    g. Remove adapter (62) from plug (63).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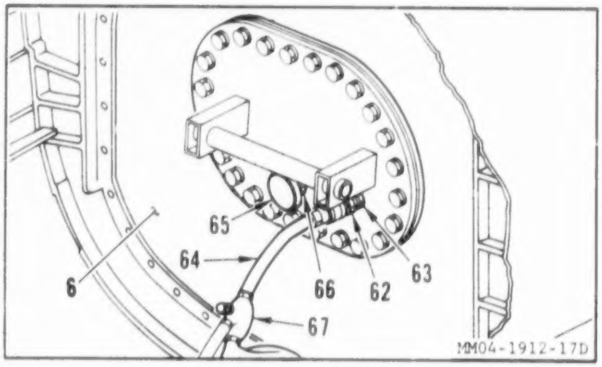
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MM04-1912-17D

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10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

CAUTION

Do not pull fuel cell by its fittings. Do not force removal or pry on fuel cell with sharp objects.

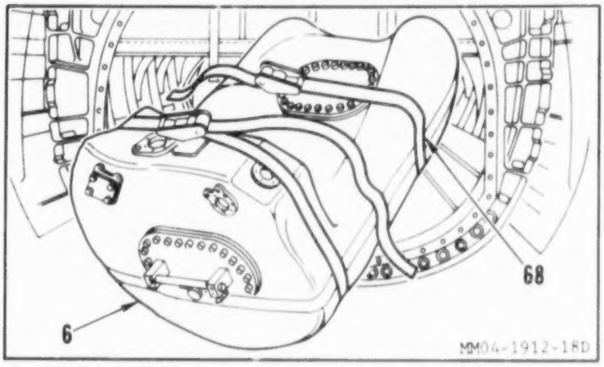
18. **To prevent damage to fuel cell, cover sharp edges of helicopter structure with duct tape.** Use tape (E41).

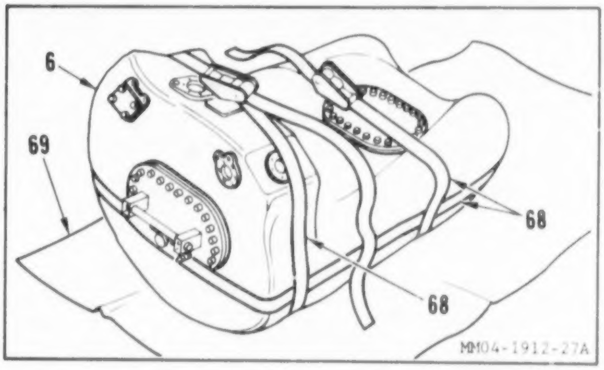
19. **Collapse fuel cell (6). Bind cell with three straps (68) from fuel cell removal and installation kit.**

20. **Remove fuel cell (6) from helicopter.** Two persons assist.

21. **Place fuel cell (6) on blanket (69).** Use blanket from fuel cell removal and installation kit. Two persons assist.

22. **Remove three straps (68) from fuel cell (6).**





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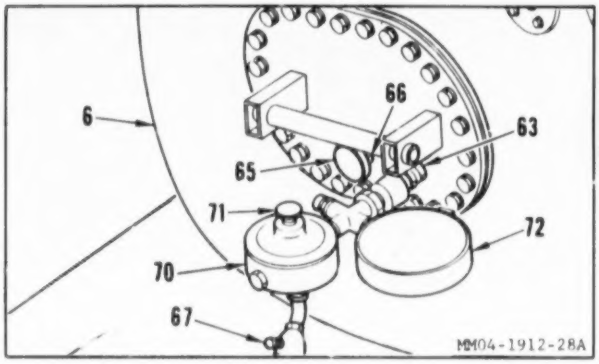

23. Inflate fuel cell (6).

a. Connect pressure fill (70) to plug (63).

b. Turn shutoff knob (65) counterclockwise to open valve (66).

c. Connect vacuum cleaner (67) to pressure fill (70).

d. Start vacuum cleaner (67).

e. Turn pressure fill regulator knob (71) clockwise until 2 psi is indicated on pressure fill regulator gage (72).

CAUTION

Ensure that relief valve is venting properly.

NOTE

Pressure fill relief valve will begin venting pressure at approximately 0.5 psi.

f. Continue to apply pressure until fuel cell is fully inflated.

g. Turn shutoff valve knob (65) clockwise with air pressure still flowing to keep fuel cell (6) inflated.

h. Stop vacuum cleaner (67).

i. Disconnect vacuum cleaner (67) from pressure fill (70).

WARNING

High pressure air exists. Air pressure from the pneumatic vacuum cleaner shall be vented and the regulator gage indicates 0 psi before disconnecting regulator. Failure to do so could cause death or serious injury. Observe all safety precautions.

j. Disconnect pressure fill (70) from plug (63).

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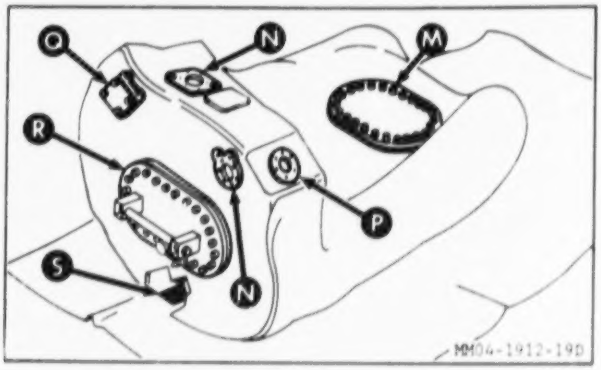
10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1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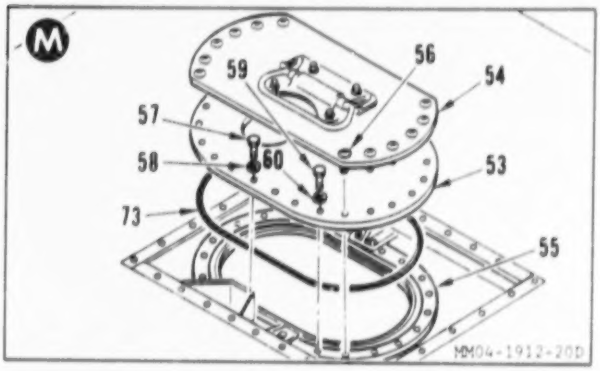
24. **Remove plate (53) and handle (54) from pad (55).** Discard packing (73).

    a. Remove 12 captive screws (56).

    b. Remove eight bolts (57) and washers (58).

    c. Remove four bolts (59) and washers (60).

    d. Remove and discard packing (73).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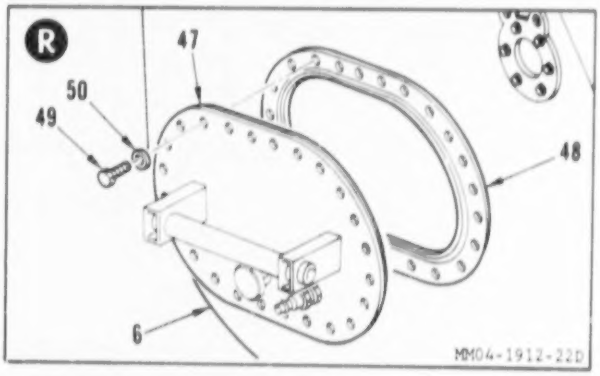
MM04-1912-20D

25. **Remove plate (47) from pad (48).** Remove 24 bolts (49) and washers (50).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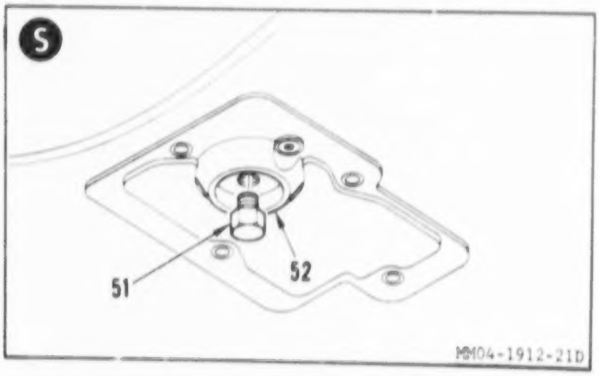
26. **Remove plug (51) from drain valve fitting (52).**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MM04-1912-21D

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10-3-1. FORWARD FUEL CELL REMOVAL (cont) 10-3-1

27. **Remove plate (43) from pad (44).** Remove four bolts (45) and washers (46).

28. **Remove plate (30) from pad (19).** Remove two bolts (31) and washers (32).

29. **Remove plate (33) from vent tube adapter pad (15) inside fuel cell (6).** Remove six bolts (34) and washers (35).

30. **Remove plate (36) from pad (26) inside fuel cell.** Remove six bolts (37) and washers (38).

31. **Remove cover plate (39) from filler neck pad (40) inside fuel cell (6).** Remove six bolts (41) and washers (42).

32. **Remove and discard packing (74) from pad (40).**

33. **Apply a thin coat of oil to fuel cell inner liner if a cell that has contained fuel is to be empty more than 10 days.** Use oil (E51).

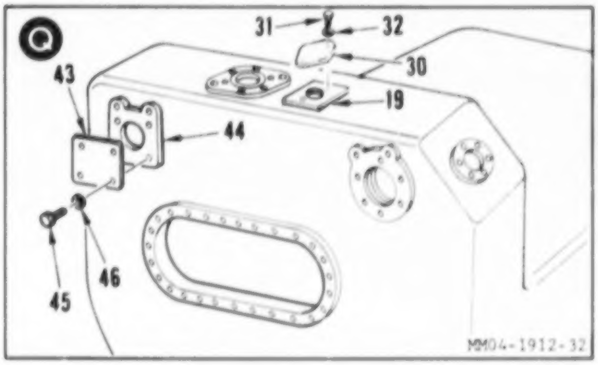
B. CLEANING

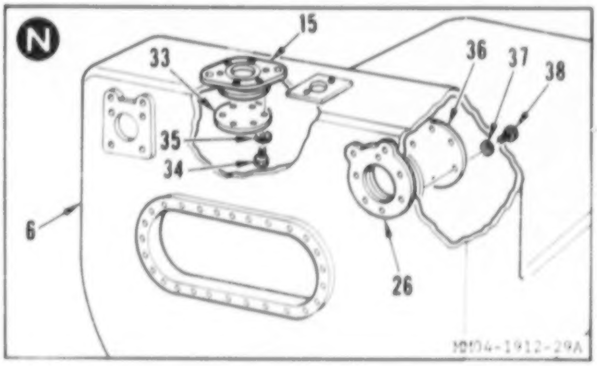
Wipe inside of fuel cell with a clean lint-free cloth (E32).

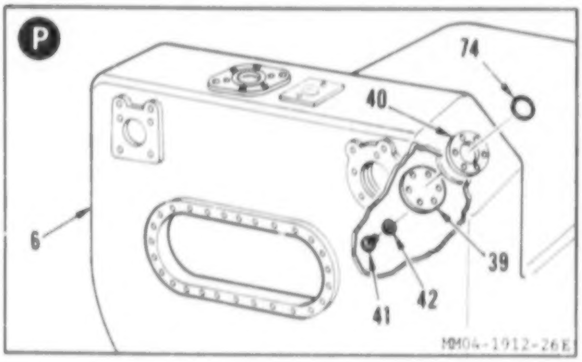
C. INSPECTION

1. **Check inside of fuel cell for cracks, corrosion, and visible damage** (para 10-2-1).

2. **Check fuel cell for tears, chafing, damaged helicoils, and cracked mounting pads** (para 10-2-1).







END OF TASK

10-3-2. FORWARD FUEL CELL INSTALLATION 10-3-2

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Fuel Cell Removal and Installation	1560-01-181-9274
Cleaner, Vacuum, Pneumatic	9910-00-807-3704
Screwdriver Bit Set and Socket	5120-00-678-5057

Materials/Parts:

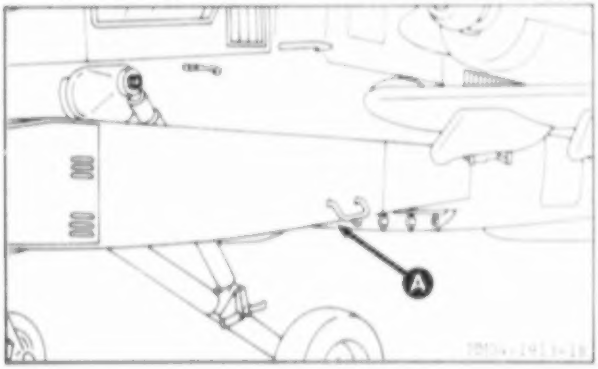
Packing
(E133) Talcum Powder
Packing with Retainer (17)

Personnel Required:

67R10	Attack Helicopter Repairer (3) Two to assist
66R30	Inspector/Supervisor

References:

TM 55-1520-238-T



10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. Check fuel cell cavity (1) for foreign objects.

2. Position fuel cell (2) on blanket (3). Use blanket from fuel cell removal and installation kit.

3. Remove protective covers (4) from fuel cell (2).

4. Inspect fuel cell (2).

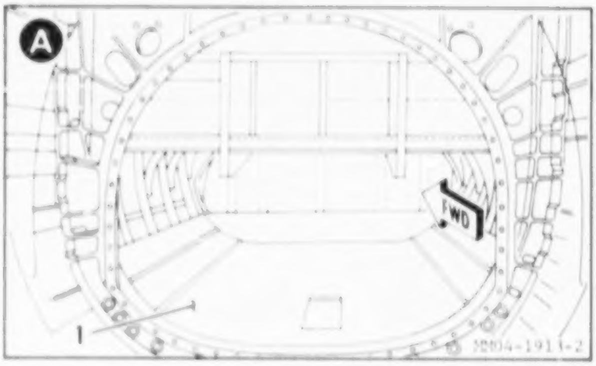
NOTE

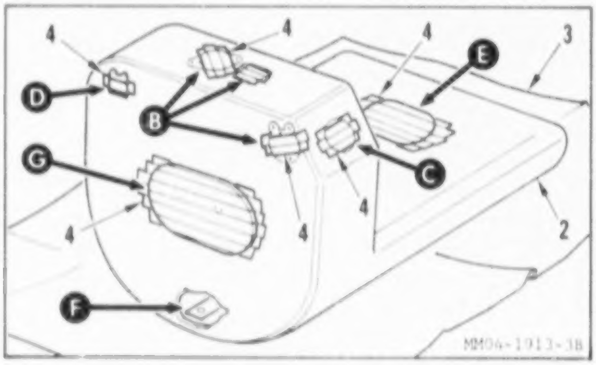
Steps 5 thru 11 install seven covers and one plug. To install covers, use bolts and washers that were used to attach parts removed from fuel cell.

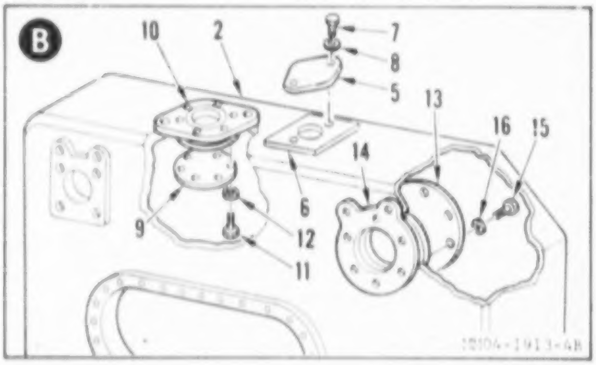
5. Install cover plate (5) on pad (6) outside fuel cell. Install two bolts (7) through two washers (8) and two plates (5) into pad (6).

6. Install cover plate (9) on vent tube adapter pad (10) inside fuel cell (2). Install six bolts (11) through six washers (12) and plate (9) into pad (10).

7. Install plate (13) on pad (14) inside fuel cell (2). Install six bolts (15) through six washers (16) and plate (13) into pad (14).







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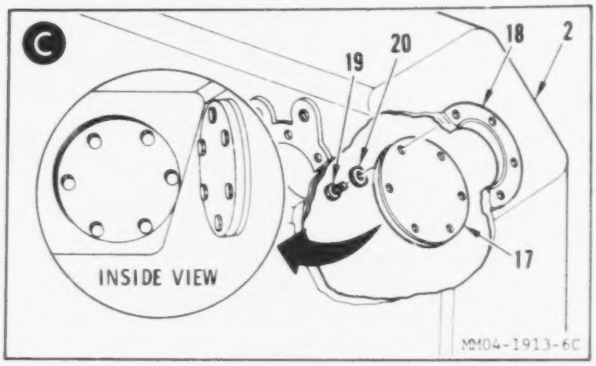
8. **Install plate (17) on pad (18) inside fuel cell (2).** Install six bolts (19) through six washers (20) and plate (17) into pad (18).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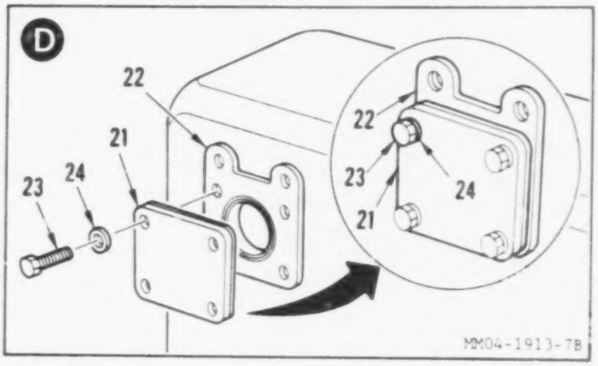
INSIDE VIEW
MM04-1913-6C

9. **Install cover plate (21) on engine fuel breakaway valve pad (22).** Install four bolts (23) through four washers (24) and plate (21) into pad (22).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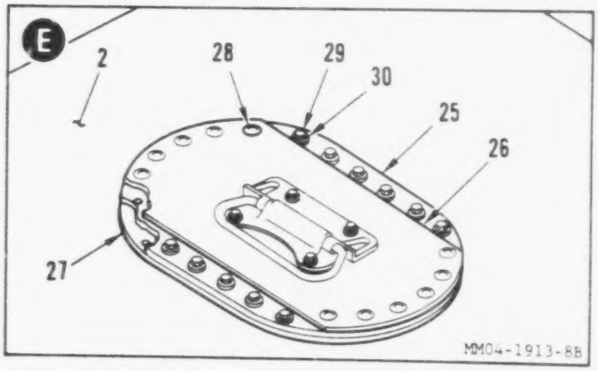
10. **Install plate (25) and handle (26) on pad (27).**

    a. Install 12 captive screws (28) of handle (26) through plate (25) into fuel cell (2).

    b. Install 12 bolts (29) through 12 washers (30) and plate (25) into fuel cell (2).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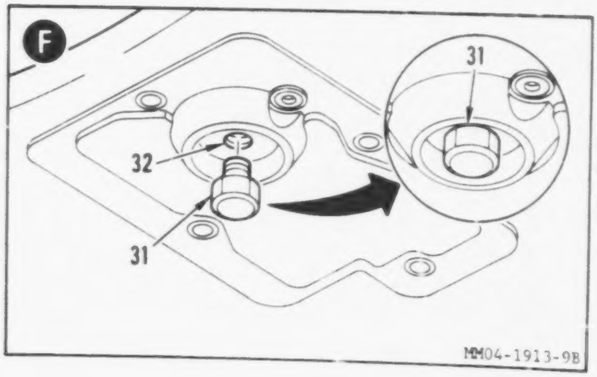
MM04-1913-8B

11. **Install plug (31) in fitting (32).**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MM04-1913-9B

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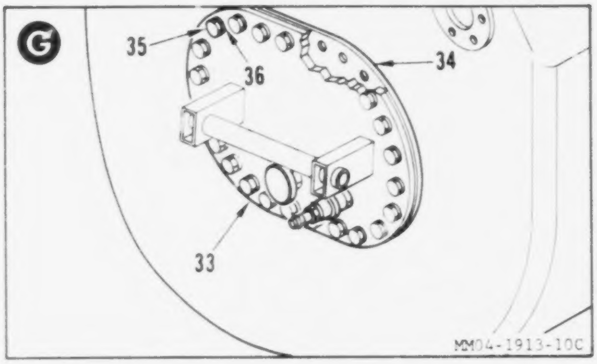
10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

12. **Install plate (33) on pad (34).** Install 24 bolts (35) through 24 washers (36) and plate (33) into pad (34).



13. **Exhaust air from fuel cell (2).**

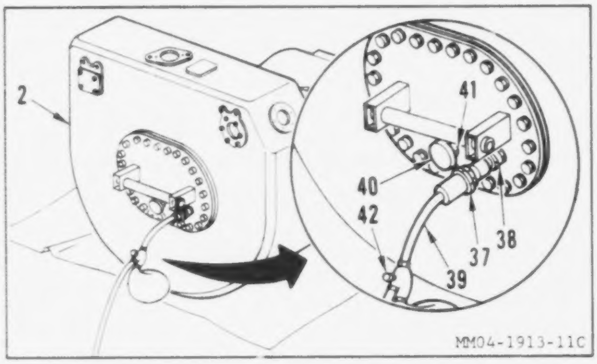
    a. Install vacuum adapter (37) on plug (38).

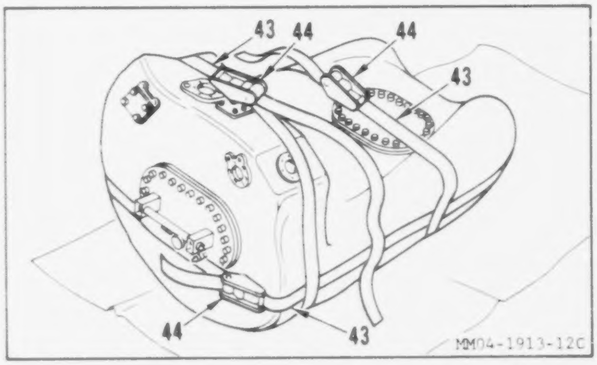
    b. Connect vacuum cleaner hose (39) to adapter (37).

    c. Turn shutoff valve knob (40) counterclockwise to open valve (41).

    d. Start vacuum cleaner (42) to exhaust air from fuel cell (2).

    e. Continue to collapse fuel cell (2). Bind with straps (43) from installation kit.





NOTE

It may be possible to collapse the cell after installation of the straps, by reapplying vacuum and cinching down the straps at the same time.

    f. Position straps (43) so buckles (44) are accessible when fuel cell (2) is installed.

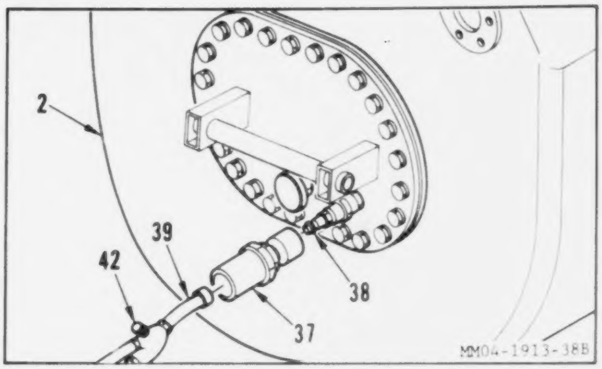
    g. Turn shutoff valve knob (40) clockwise to close valve (41).

GO TO NEXT PAGE

10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

h. Stop vacuum cleaner (42). Disconnect hose (39) from vacuum adapter (37).

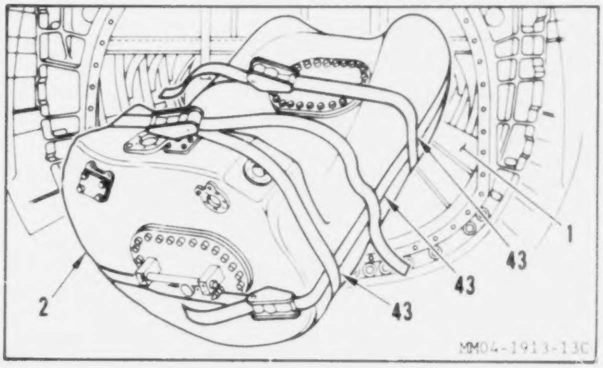
i. Remove adapter (37) from plug (38).



14. **Apply talcum powder to outer surfaces of fuel cell and to fuel cell cavity.** Use talcum powder (E133). Allow fuel cell to warm to room temperature.

15. **Position fuel cell (2) in fuel cavity (1) with fuel drain over access opening.** Ensure backing boards are properly positioned in fuel cavity and taped in position (para 10-3-6).

16. **Remove straps (43).**



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10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

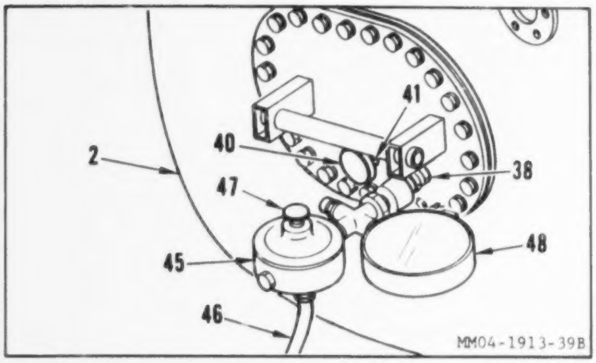
17. **Inflate fuel cell (2).**

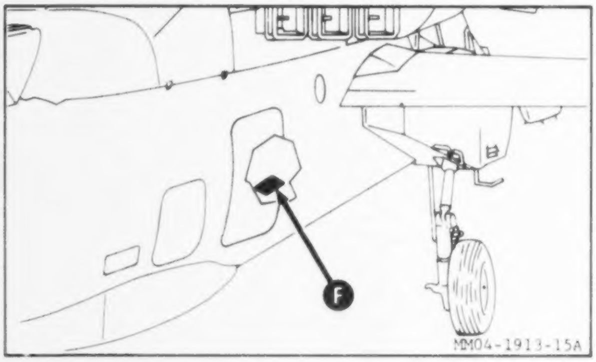
    a. Connect pneumatic pressure fill (45) to plug (38).

    b. Turn shutoff valve knob (40) fully counterclockwise to open valve (41).

    c. Connect air hose (46) to pressure fill (45).

    d. Turn regulator knob (47) of pressure fill (45) clockwise until 2 psi is indicated on pressure regulator gage (48).





NOTE

Pressure fill assembly relief valve will begin venting pressure at approximately 0.5 psi.

    e. Continue to apply pressure until fuel cell is fully inflated.

    f. Turn shutoff valve knob (40) fully clockwise, with air pressure still flowing, to keep fuel cell (2) inflated.

    g. Disconnect air hose (46) from pressure fill (45).

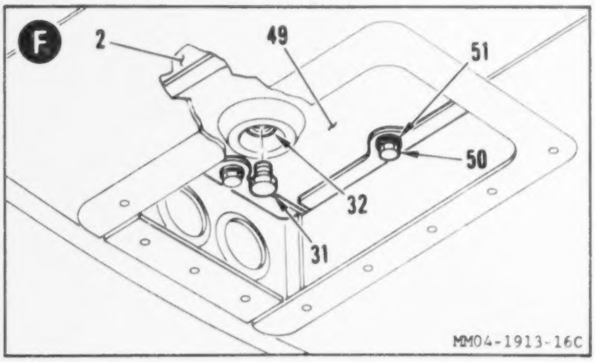
WARNING

High pressure air exists. Air pressure from the pneumatic vacuum cleaner shall be vented and the regulator gage indicates 0 psi before disconnecting regulator. Failure to do so could cause death or serious injury. Observe all safety precautions.

    h. Disconnect pressure fill (45) from plug (38).

18. **Connect fuel cell (2) to pad (49).** Install four bolts (50) and four washers (51).

19. **Remove plug (31) from fitting (32).**



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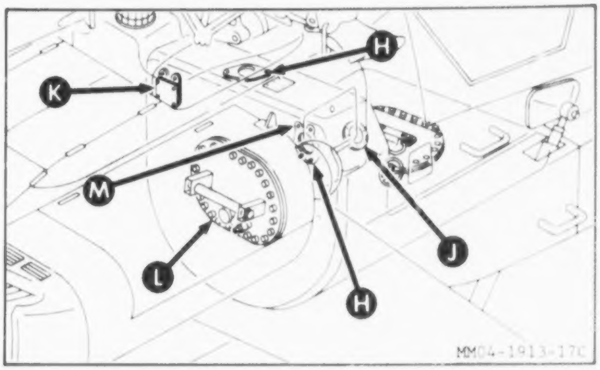
10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2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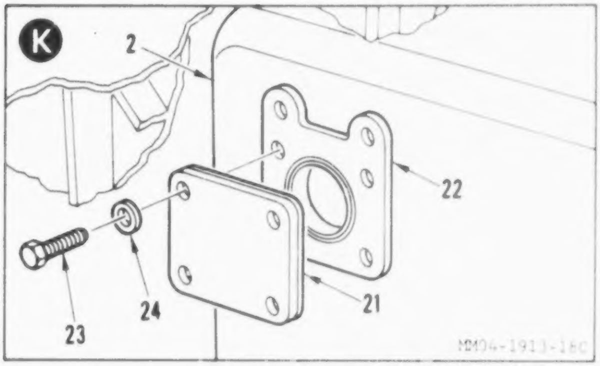
20. **Remove cover plate (21) from pad (22) in ammunition bay.** Remove four bolts (23) and four washers (24).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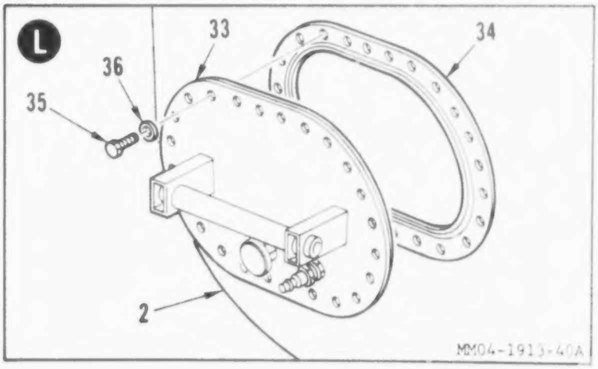
21. **Remove cover plate (33) from pad (34) in ammunition bay.** Remove 24 bolts (35) and 24 washers (36).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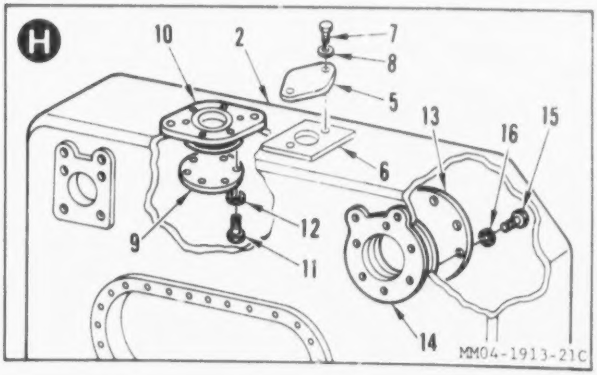
22. **Remove plate (5) from pad (6).** Remove two bolts (7) and two washers (8).

23. **Remove cover plate (13) from pad (14) inside fuel cell (2).** Remove six bolts (15) and washers (16).

24. **Remove cover plate (9) from pad (10) inside fuel cell (2).** Remove six bolts (11) and washers (12).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MM04-1913-21C

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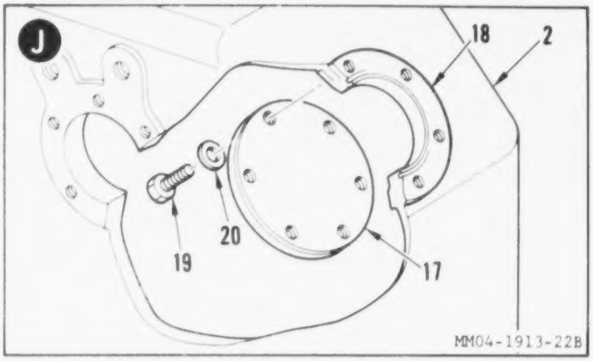
10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

25. **Remove plate (17) from pad (18) inside fuel cell (2).** Remove six bolts (19) and washers (20).



26. **Connect fuel cell (2) to filler neck (52) in transmission deck.**

    a. Lubricate packing (53). Use petrolatum (E16).

    b. Install packing (53) in fuel cell groove (54).

    c. Install five washers (56) and bolts (55).

    d. Install bolt (55) through washer (56) and ground strap (57).

27. **Inspect (TI).**

28. **Install access cover (58).**

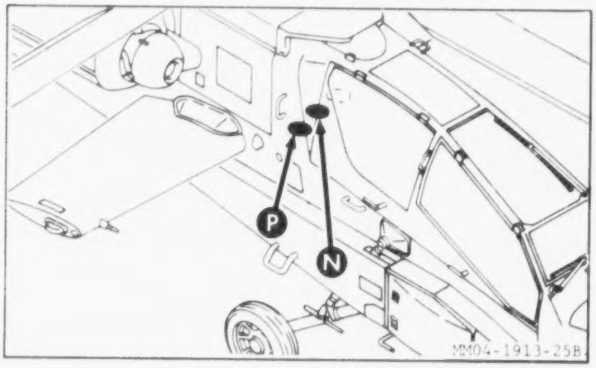
    a. Slide grommet and wire bundle (87) into slot in cover (58).

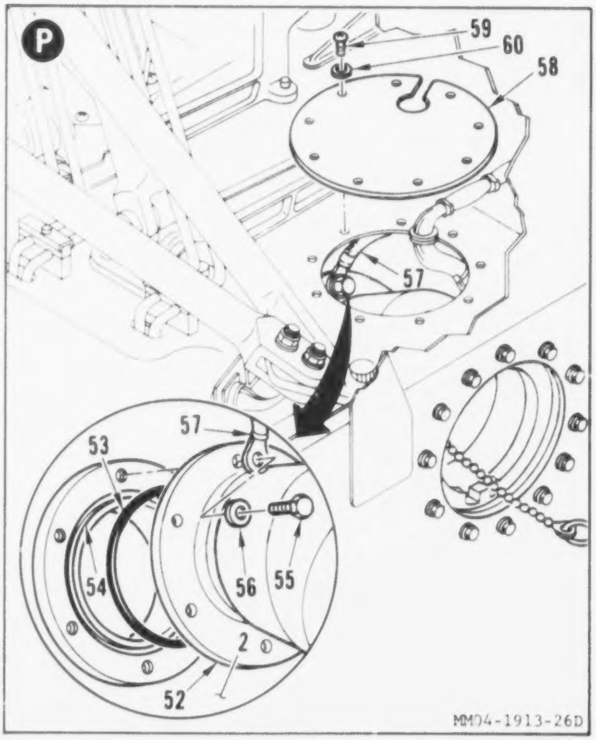
    b. Position cover (58) over opening in deck (88).

    c. Lubricate nine new packings with retainer (60). Use petrolatum (E16).

    d. Install nine screws and packings with retainer (60).

29. **Install forward fuel cell engine fuel supply breakaway valve** (para 10-2-28).





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10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

30. **Attach fuel cell (2) to pad (10) in transmission deck.** Install two bolts (61) through two rectangular washers (62) into pad (10).

31. **Attach fuel cell (2) to pilot valve mounting pad (63) in transmission deck.** Install two bolts (64) through two rectangular washers (65) and two flat washers (66) into structure (67). Position flat washers (66) between structure (67) and fuel cell (2).

32. **Install fuel cell breakaway valve (68) on pad (63).**

    a. Lubricate packing (69). Use petrolatum (E16).

    b. Install packing (69) in groove (70).

    c. Install two bolts (71) through two washers (72).

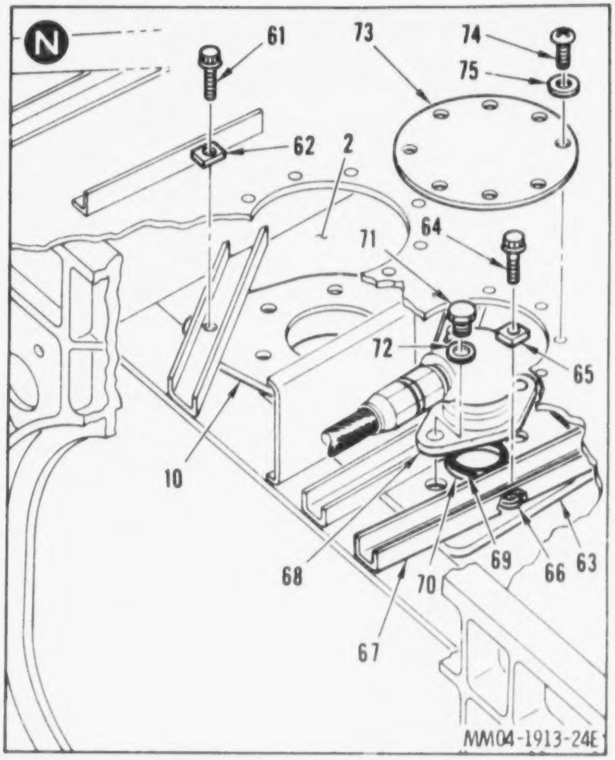
33. **Inspect (TI).**

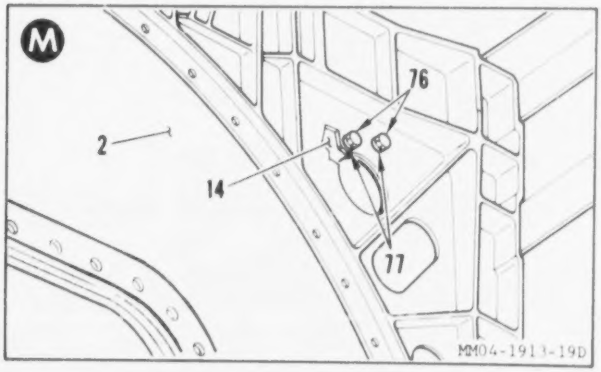
34. **Install access cover (73).**

    a. Lubricate eight new packings with retainer (75). Use petrolatum (E16).

    b. Install eight screws (74) through packings with retainer (75) and cover (73) into structure (67).

35. **Connect fuel cell (2) to mounting pad (14) in ammunition bay.** Install two bolts (76) and washers (77).





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36. **From floor of pilot station remove plate (25) and handle (26) from pad (27).**

    a. Unfasten 12 captive screws (28) on handle (26).

    b. Remove 12 bolts (29) and washers (30) from cover plate (25).

    NOTE

    The access cover installed in steps 37 thru 41 is the cover used when the helicopter is in service.

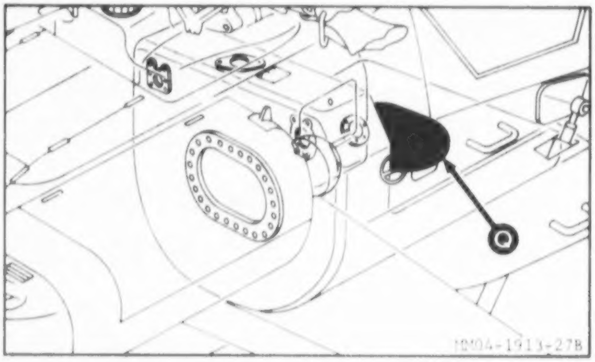
37. **Position access cover (78) on pad (27).**

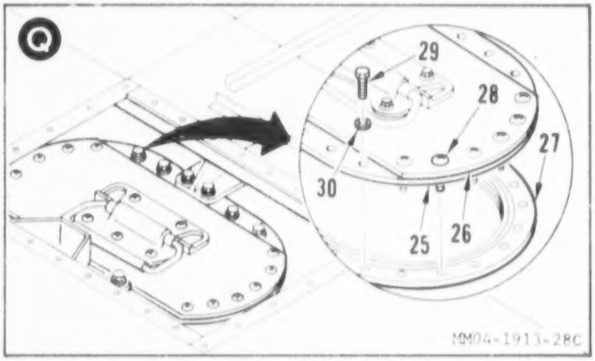
    a. Lubricate new packing (79). Use petrolatum (E16).

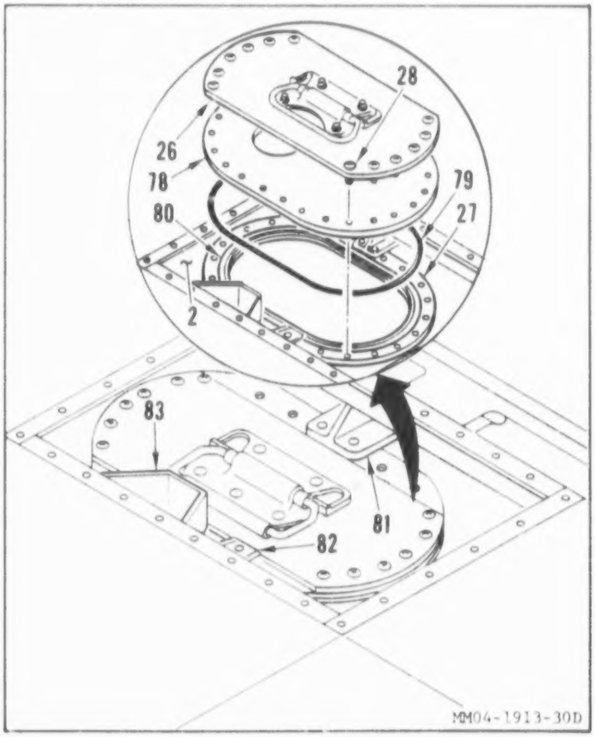
    b. Install packing (79) in groove (80) on fuel cell (2).

    c. Position cover (78) on mounting pad (27) under three brackets (81), (82), and (83). Observe FWD and TOP markings on cover plate (78).

38. **Install handle (26) on cover (78).** Tighten 12 captive screws (28) on handle (26) through access cover (78) into forward access mounting pad (27).







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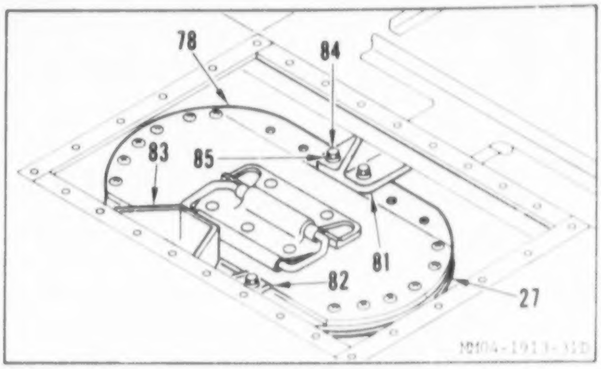
10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

39. **Pulling handle and fuel cell, install four bolts (84) through four washers (85); brackets (81), (82), (83); and cover (78) into pad (27).**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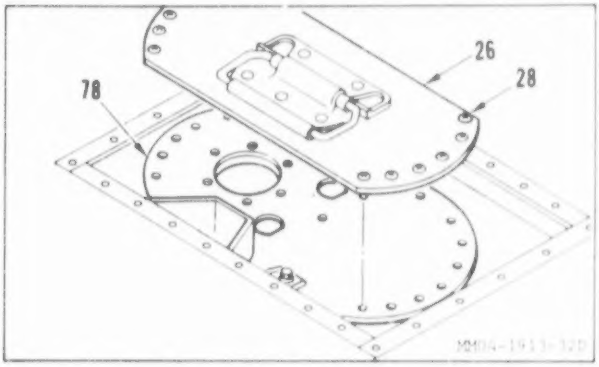
40. **Remove handle (26) from cover (78).** Unfasten 12 captive screws (28) on handle (26).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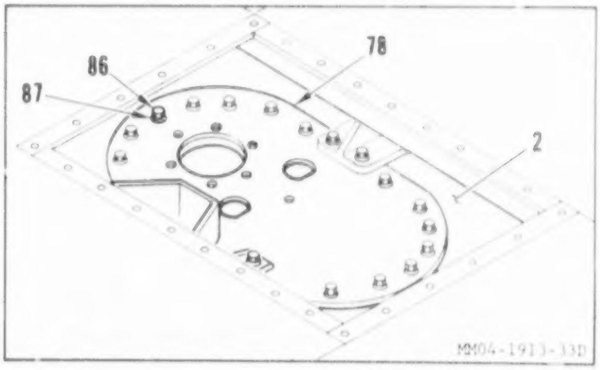
41. **Install access cover (78) on forward access cover mounting pad (27).** Install 20 bolts (86) through 20 washers (87) and cover (78) into pad (27).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42. **Inspect (TI).**

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10-3-2. FORWARD FUEL CELL INSTALLATION (cont) 10-3-2

43. Install forward fuel cell refueling breakaway valve (10-2-29).

44. Install forward fuel cell engine supply breakaway valve (10-2-28).

45. Install forward air vent/pressure relief valve (10-2-27).

46. Install forward fuel cell aft fuel quantity transmitter (10-2-25).

47. Install forward fuel cell engine fuel supply hose (10-2-35).

48. Install forward fuel cell check/thermal relief valve (10-2-21).

49. Install forward fuel cell level control pilot valve (10-2-23).

50. Install forward fuel cell pilot valve hose (10-2-22).

51. Install forward fuel cell fuel/defuel valve (10-2-33).

52. Install forward fuel cell refueling hose (10-2-36).

53. Install forward fuel cell fuel shutoff valve (10-2-26).

54. Install forward fuel cell vent tube adapter (10-2-16).

55. Install forward fuel cell vent tube (10-2-37).

56. Install forward fuel cell forward access cover (10-2-19).

57. Install forward fuel cell lightning arrestor (10-2-64).

58. Install forward poppet draincock (10-2-4).

59. Refuel helicopter (para 1-5-2).

60. Perform fuel quantity indication/transfer operational check (TM 55-1520-238-T).

END OF TASK

10-3-3. AFT FUEL CELL REMOVAL 10-3-3

This task covers: A. REMOVAL B. CLEANING C. INSPECTION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Fuel Cell Removal and Installation	1560-01-181-9274
Cleaner, Vacuum, Pneumatic	7910-00-807-3704

Materials/Parts:

(E32) Cloth, Lint-Free
(E41) Tape, Duct
(E51) Oil

Personnel Required:

67R10 Attack Helicopter Repairer (3)
Two to assist

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-2-4	Aft poppet drain cock removed
TM 9-1090-208-23	Ammunition storage magazine removed

Equipment Conditions (cont):

Ref	Condition
10-2-17	Aft fuel cell upper vent tube adapter removed
10-2-82	Aft outlet breakaway valve removed
10-2-72	Fuel boost pump removed
10-2-85	Fuel boost pump outlet hose removed
10-2-73	Fuel boost pump inlet hose removed
10-2-81	Aft refueling breakaway valve removed
10-2-74	Fuel boost pump canister removed
10-2-86	Aft fuel cell fuel supply hose removed
10-2-83	Aft fuel cell refueling hose removed
10-2-77	Aft pilot valve hose removed
10-2-75	Aft four-way check valve removed
10-2-78	Aft fuel cell fuel quantity transmitter removed
10-2-79	Aft fuel cell fuel supply hose removed
10-2-80	Aft air vent/pressure relief valve removed
10-2-76	Aft fuel cell pilot valve removed
10-2-71	Aft fuel cell fuel/defuel check valve removed

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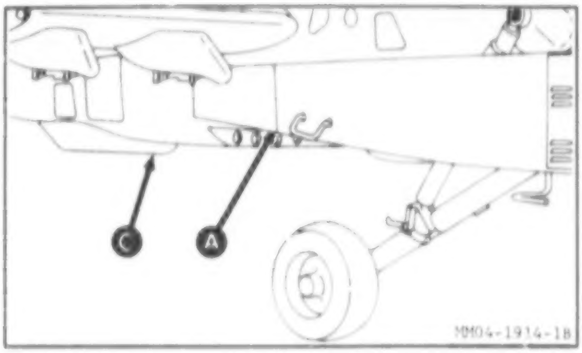
10-3-3. AFT FUEL CELL REMOVAL (cont)

A. REMOVAL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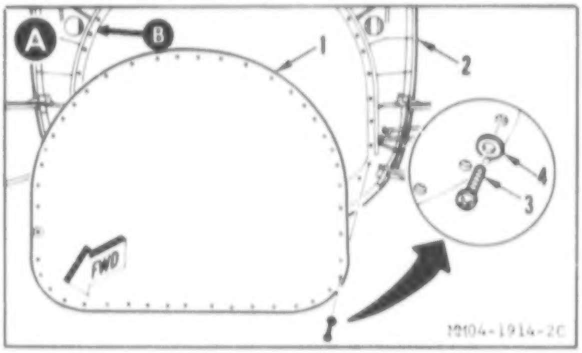
WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Remove fuel cell access panel (1) from helicopter structure (2).** Remove 46 screws (3) and washers (4).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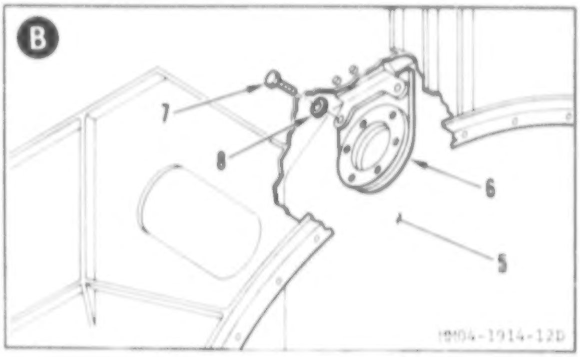
2. **Disconnect fuel cell (5) from refueling breakaway valve mounting pad (6) in ammunition bay.** Remove two bolts (7) and washers (8).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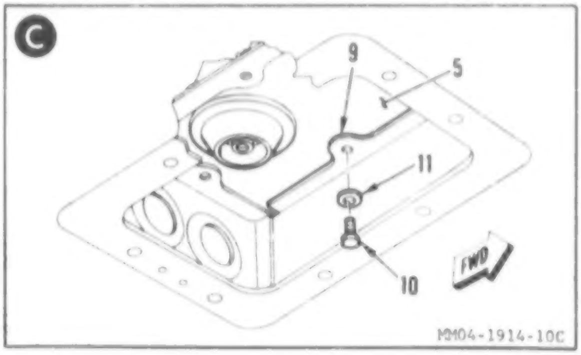
3. **Disconnect fuel cell (5) from drain valve mounting pad (9).** Remove four bolts (10) and washers (11).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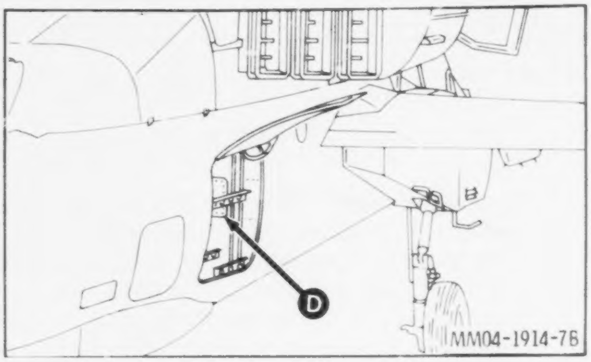
10-3-3. AFT FUEL CELL REMOVAL (cont) 10-3-3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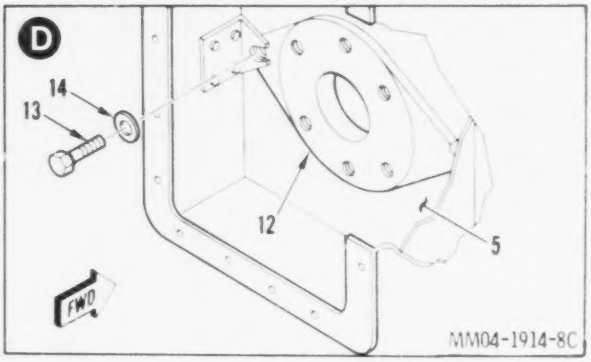
4. **Disconnect fuel cell (5) from boost pump mounting pad (12) in aft electronics bay.** Remove two bolts (13) and washers (14).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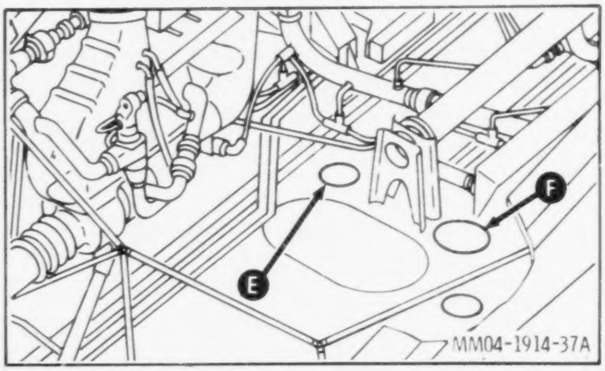
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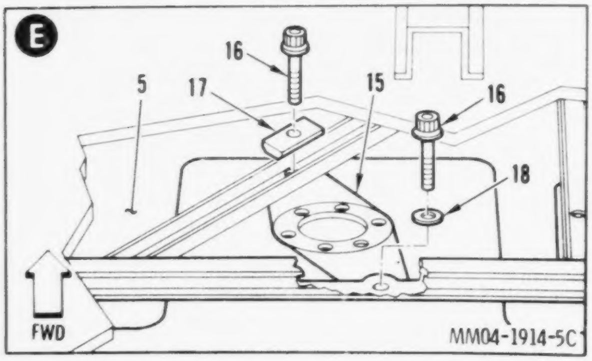
5. **Detach fuel cell (5) from vent tube adapter mounting pad (15) in transmission deck.** Remove two bolts (16) and washers (17) and (18).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MM04-1914-5C

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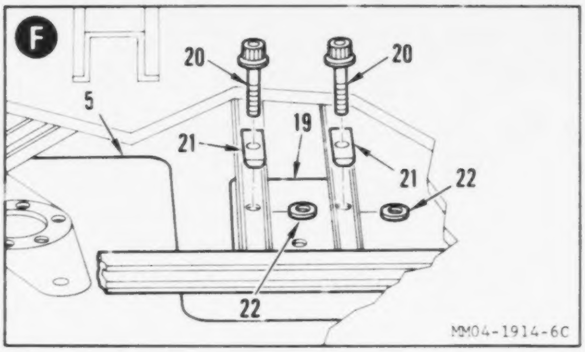
6. **Disconnect fuel cell (5) from pilot valve mounting pad (19) in transmission deck.** Remove two bolts (20), rectangular washers (21), and flat washers (22).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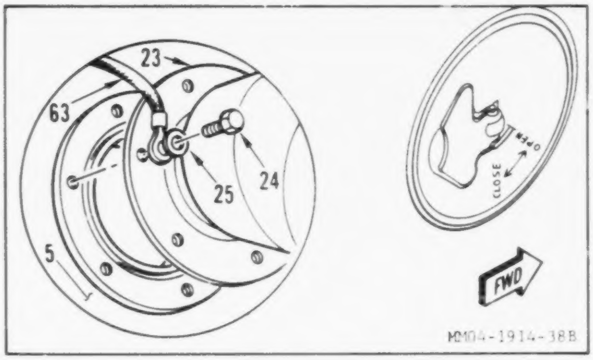
7. **Disconnect fuel cell (5) from filler neck (23).** Stand in fuel cell. Press fuel cell corner to remove six bolts (24), washers (25), and ground strap (63) from inboard flange of filler neck (23) and fuel cell (5).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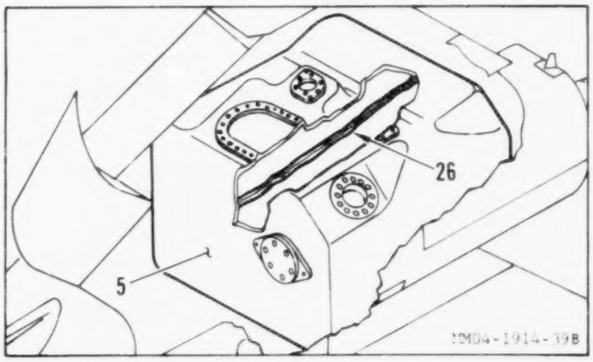
8. **Remove wiring harness (26) from fuel cell (5).**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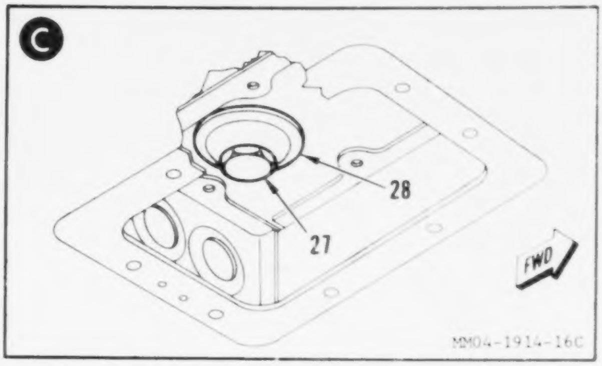
9. **Install plug (27) in drain valve fitting (28).**

NOTE

Steps 9 thru 15 install six covers and one plug. To install covers, use bolts and washers that attached parts removed from fuel cell.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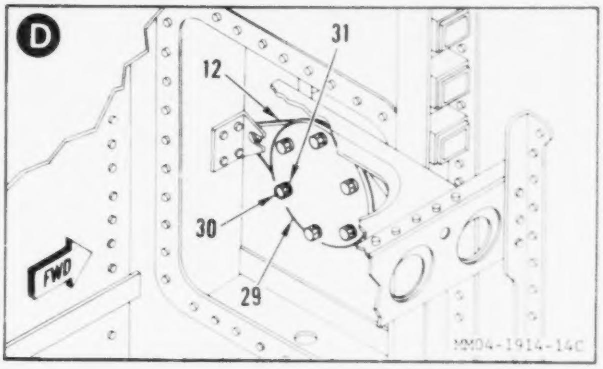
10. **Install cover plate (29) on pad (12).** Install six washers (31) and bolts (30).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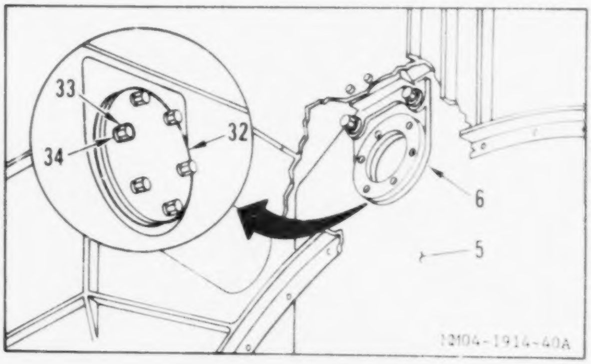
11. **Install cover plate (32) on pad (6) inside fuel cell (5).** Install six bolts (33) through six washers (34).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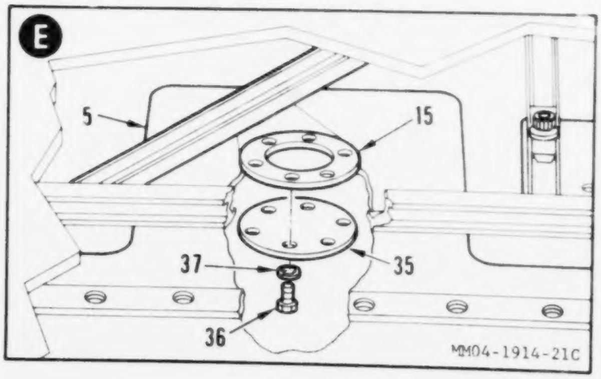
12. **Install cover plate (35) from inside fuel cell (5) on vent tube adapter mounting pad (15).** Install six bolts (36) through six washers (37).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MM04-1914-21C

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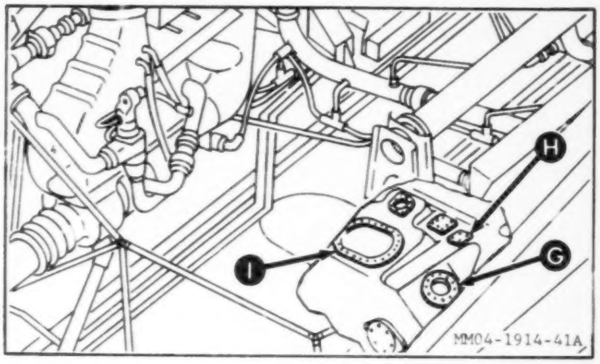
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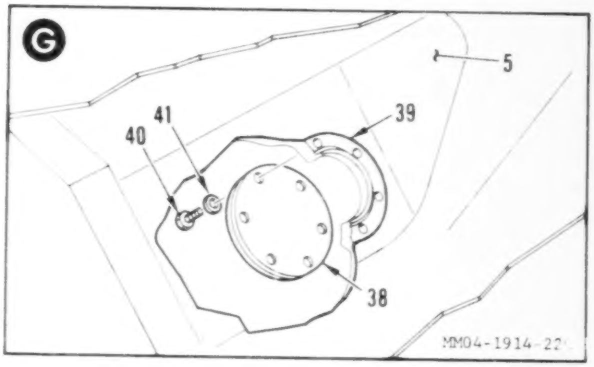
G
5
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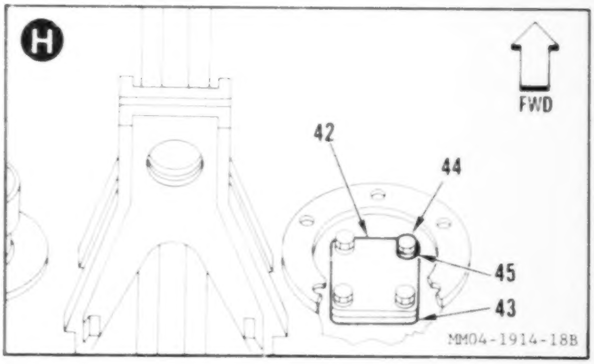
38
MM04-1914-22

13. **Install cover plate (38) on filler neck mounting pad (39) inside fuel cell (5).** Install six bolts (40) through six washers (41).

NOTE

Cover plate must be installed through fuel cell access in transmission deck.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FWD
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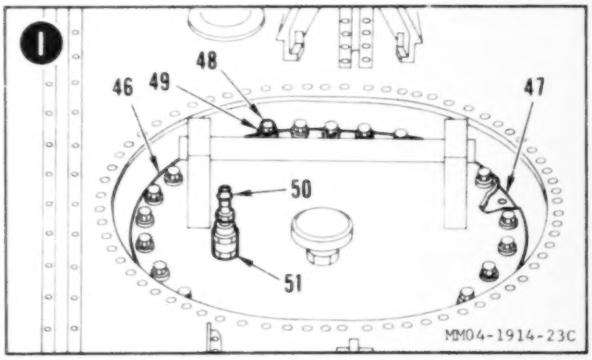
MM04-1914-18B

14. **Install cover plate (42) on pad (43) in transmission deck.** Install four bolts (44) through four washers (45).


I
48
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MM04-1914-23C

15. **Install cover plate (46) on pad (47) in transmission deck.**

    a. Install 24 bolts (48) through 24 washers (49).

    b. Install vacuum adapter (50) on plug (51).

GO TO NEXT PAGE

10-3-3. AFT FUEL CELL REMOVAL (cont)

16. **Exhaust air from fuel cell (5).** Use vacuum cleaner (52).

    a. Connect vacuum cleaner hose (53) to adapter (50).

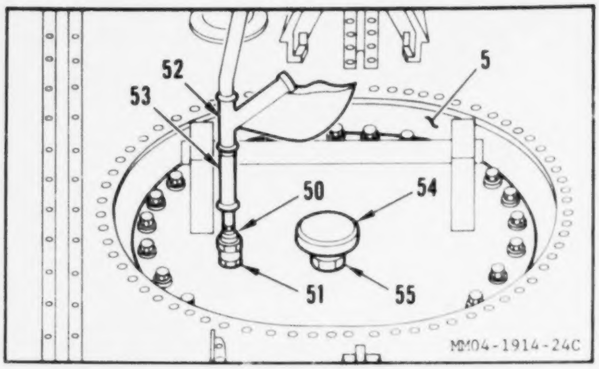
    b. Turn shutoff valve knob (54) counterclockwise to open valve (55).

    c. Start vacuum cleaner (52) to exhaust air from fuel cell (5).

    d. Turn shutoff valve knob (54) clockwise to close valve (55). Stop vacuum cleaner (52).

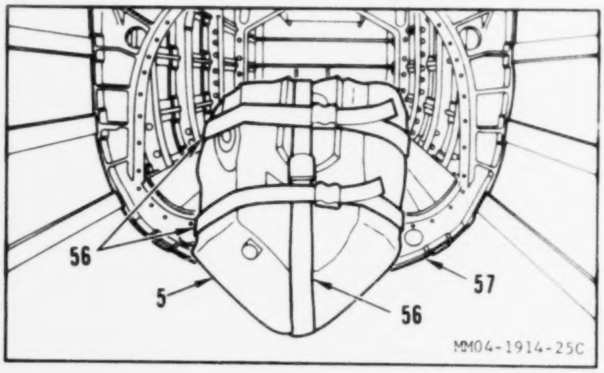
    e. Disconnect hose (53) from adapter (50).

    f. Remove adapter (50) from plug (51).



17. **Continue to collapse fuel cell (5) and bind.** Use straps (56) from fuel cell removal and installation kit (as required).

18. **Cover sharp edges of structure with duct tape to prevent damage to fuel cell.** Use tape (E41).



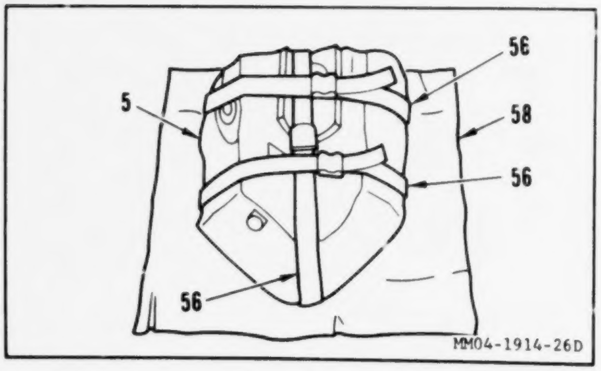
CAUTION

Do not pull fuel cell by its fittings. Do not force removal or pry on fuel cell with sharp objects.

19. **Remove fuel cell (5) from helicopter (57).** Use straps (56) as hand holds. Use help from assistants.

20. **Place fuel cell (5) on blanket (58).** Use blanket from fuel cell removal and installation kit.

21. **Remove straps (56) from fuel cell (5).**



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10-3-3. AFT FUEL CELL REMOVAL (cont) 10-3-3

22. **Inflate fuel cell (5).**

    a. Connect pressure fill (59) to plug (51).

    b. Turn shutoff valve knob (54) fully counterclockwise to open valve (55).

    c. Connect air hose (60) to pressure fill (59).

    d. Turn pressure fill regulator knob (61) clockwise until 2 psi is indicated on pressure regulator gage (62).

NOTE

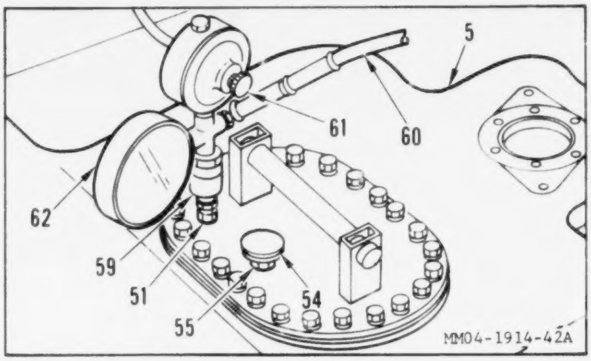
Pressure fill relief valve will begin venting pressure at approximately 0.5 psi.

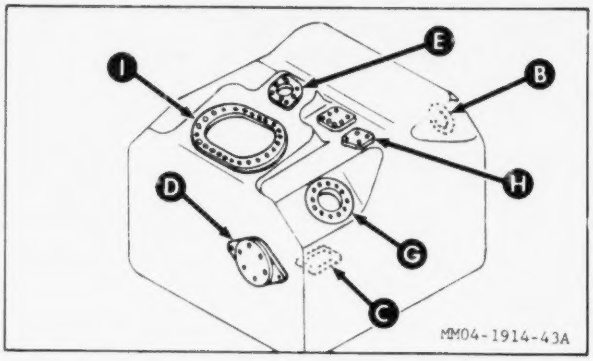
    e. Continue to apply pressure until fuel cell is fully inflated.

    f. Turn shutoff valve knob (54) fully clockwise, with air pressure still flowing, to keep fuel cell (5) inflated.

    g. Disconnect hose (60) from pressure fill (59).

    h. Disconnect pressure fill (59) from plug (51).





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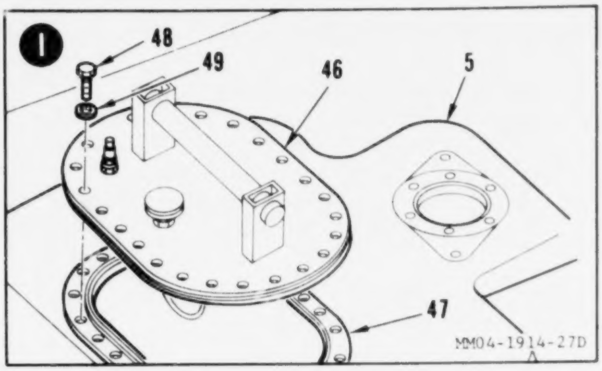
22. **Remove cover plate (46) from fuel cell access cover mounting pad (47).** Remove 24 bolts (48) and washers (49).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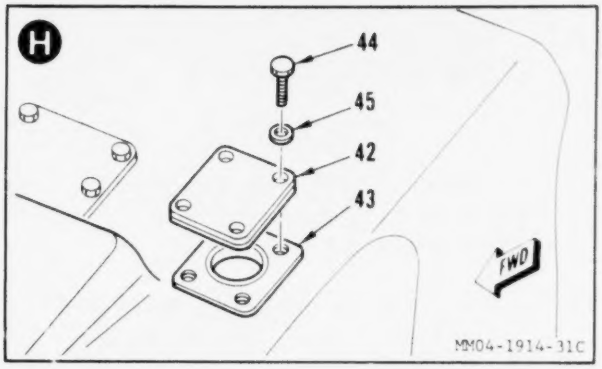
MM04-1914-27D

23. **Remove plate (42) from pad (43).** Remove four bolts (44) and washers (45).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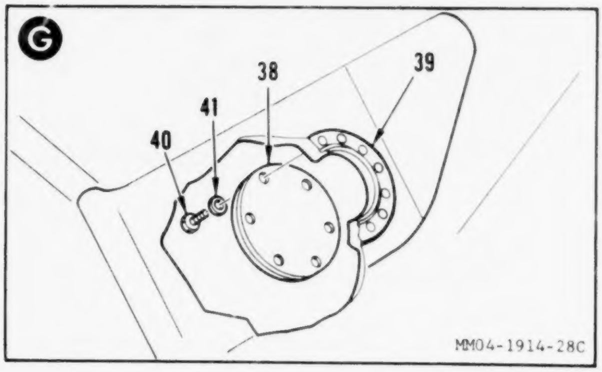
MM04-1914-31C

24. **Remove plate (38) from pad (39) inside fuel cell (5).** Remove six bolts (40) and washers (41).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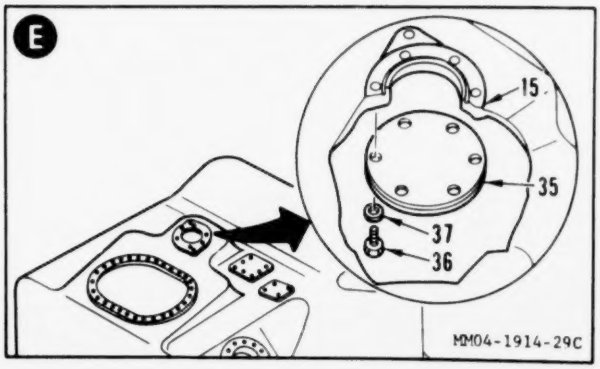
MM04-1914-28C

25. **Remove plate (35) from pad (15) inside fuel cell (5).** Remove six bolts (36) and washers (37).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MM04-1914-29C

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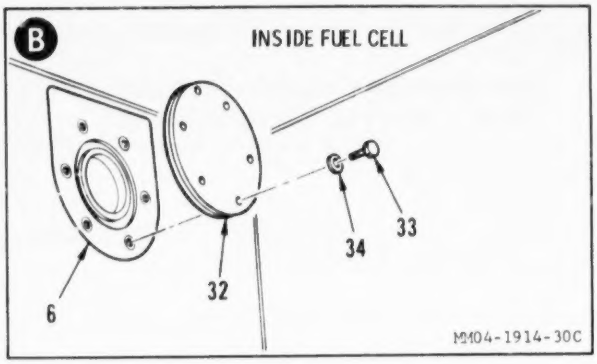
10-3-3. AFT FUEL CELL REMOVAL (cont) 10-3-3

26. **Remove cover plate (32) from refueling breakaway valve mounting pad (6) inside fuel cell (5).** Remove six bolts (33) and washers (34).


B
INSIDE FUEL CELL
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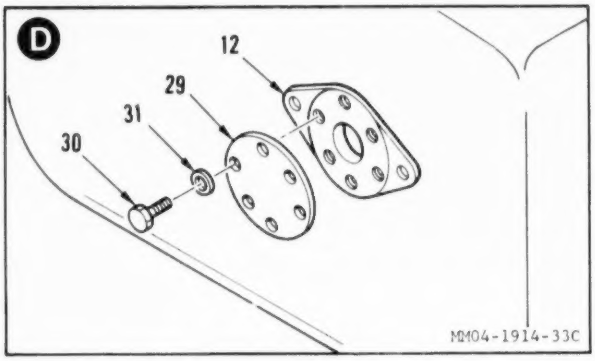
MM04-1914-30C

27. **Remove plate (29) from pad (12).** Remove six bolts (30) and washers (31).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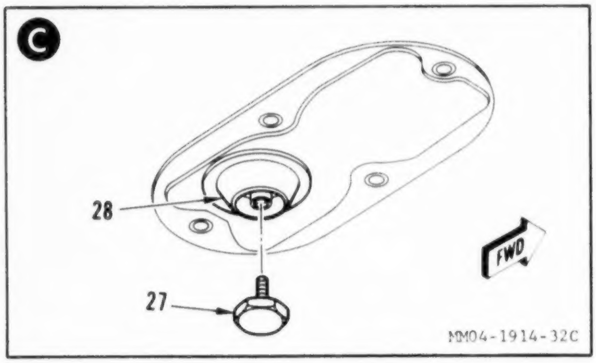
MM04-1914-33C

28. **Remove plug (27) from fitting (28).**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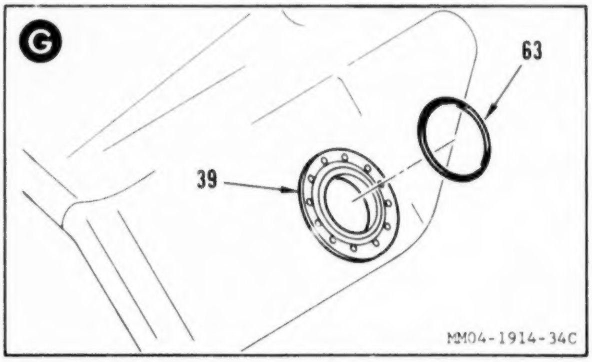
MM04-1914-32C

29. **Remove and discard packing (63) from pad (39).**


G
63
39
MM04-1914-34C

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B. CLEANING

Wipe inside of fuel cell with a clean lint-free cloth (E32).

C. INSPECTION

1. **Check inside of fuel cell for cracks, corrosion,** (para 1-5-38).
2. **Check fuel cell for tears, holes, chafing, damaged helicoils, and cracked mounting pads** (para 10-2-1).

NOTE

Apply a thin coat of oil to fuel cell inner liner if a cell that has contained fuel is to be empty more than 10 days. Use oil (E51).

END OF TASK

10-3-4. AFT FUEL CELL INSTALLATION 10-3-4

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692
Kit, Fuel Cell, Removal and Installation	1560-01-181-9274
Cleaner, Vacuum Pneumatic	

Personnel Required:

67R10	Attack Helicopter Repairer (2) One to assist
66R30	Inspector/Supervisor

Materials/Parts:

	Packing with Retainer (7)
	Packing
(E16)	Petrolatum
(E133)	Talcum Powder

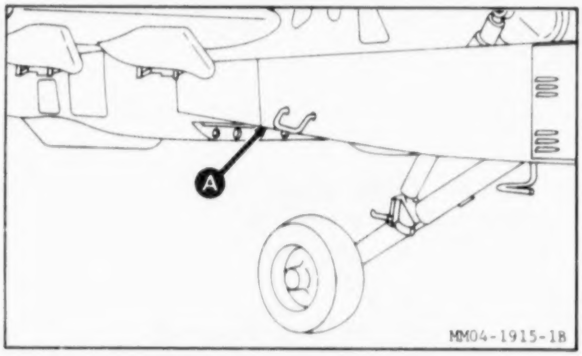
References:

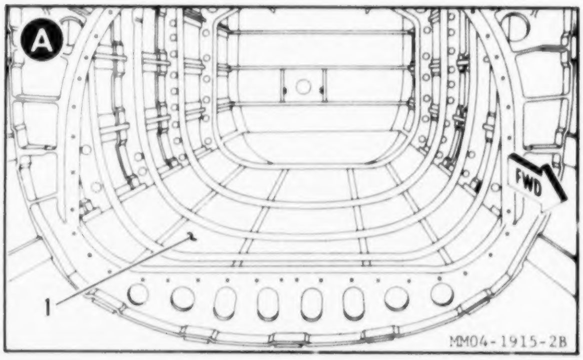
TM 55-1520-238-T
TM 11-1520-238-23
TM 9-1090-208-23

WARNING

Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet fuel comes in contact with eyes or skin, flush with water and seek medical aid.

1. **Check fuel cell cavity (1) for foreign objects.**





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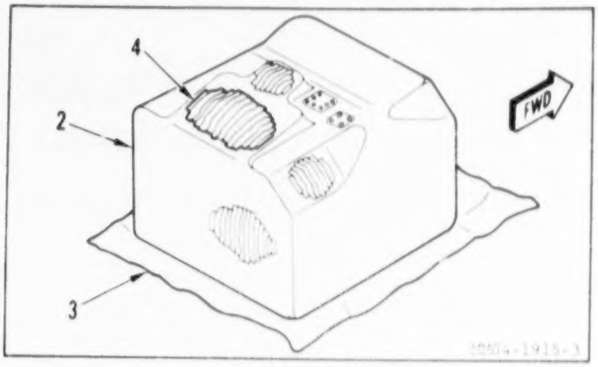
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4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MM04-1915-3

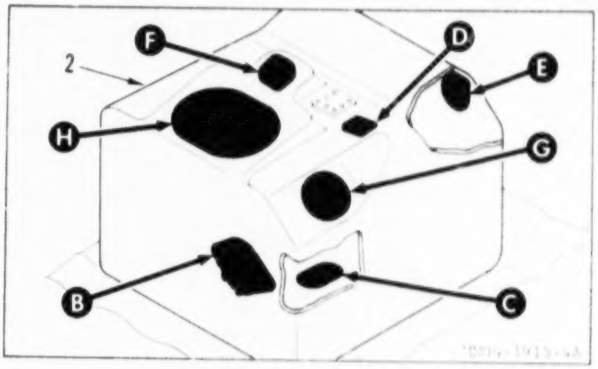
2. **Position fuel cell (2) on blanket (3).** Use blanket from fuel cell removal and installation kit.

3. **Remove tape (4) from fuel cell (2).**

4. **Inspect fuel cell (2).**

NOTE

Steps 5 thru 11 install six covers and one plug. To install covers, use bolts and washers that attached parts removed from fuel cell.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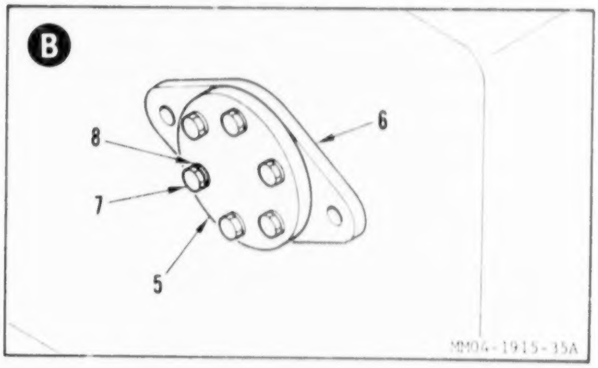
MM04-1915-4A

5. **Install cover plate (5) on boost pump mounting pad (6).** Install six washers (8) and bolts (7).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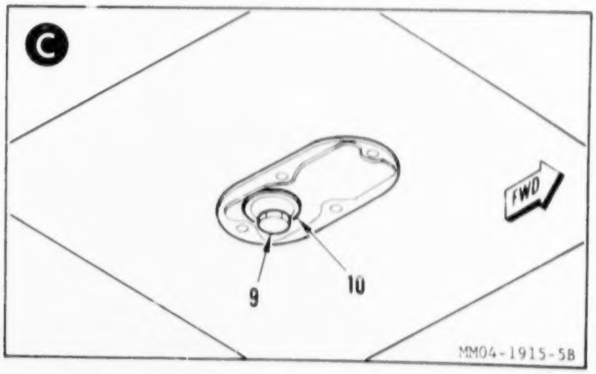
MM04-1915-35A

6. **Install plug (9) in drain valve fitting (10).**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MM04-1915-5B

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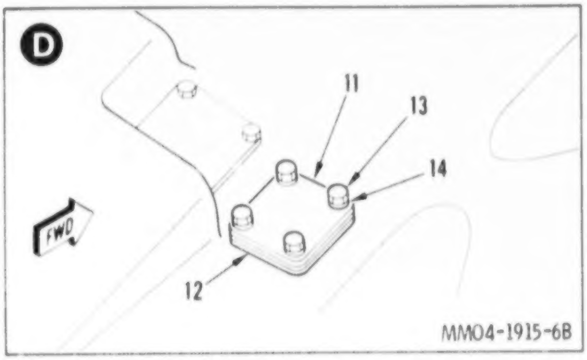
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4

7. **Install cover plate (11) on engine fuel supply breakaway valve mounting pad (12).** Install four washers (14) and bolts (13).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FWD
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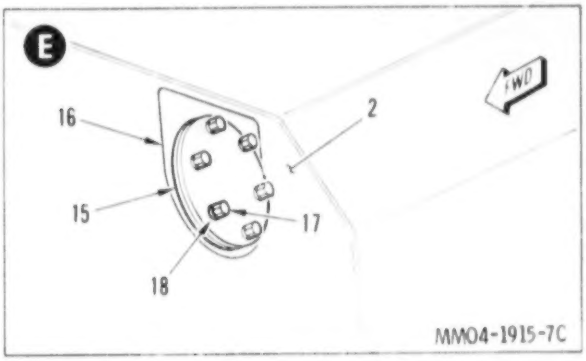
MM04-1915-6B

8. **Install cover plate (15) on refueling breakaway valve mounting pad (16) inside fuel cell (2).** Install six washers (18) and bolts (17).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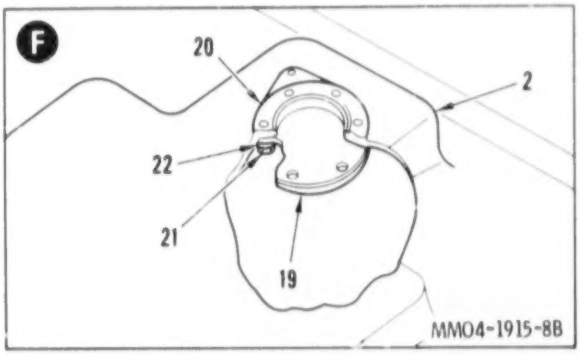
MM04-1915-7C

9. **Install cover plate (19) on vent tube adapter mounting pad (20) inside fuel cell (2).** Install six washers (22) and bolts (21).


F
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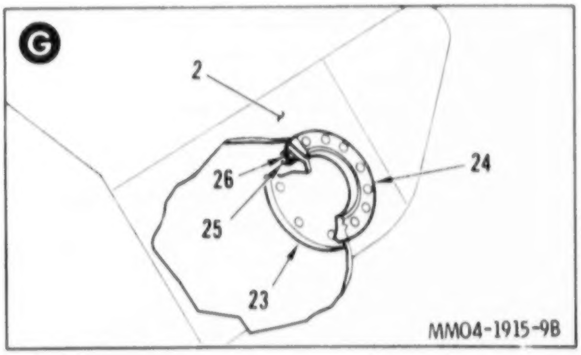
MM04-1915-8B

10. **Install cover plate (23) on filler neck mounting pad (24) inside fuel cell (2).** Install six washers (26) and bolts (25).


G
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23
MM04-1915-9B

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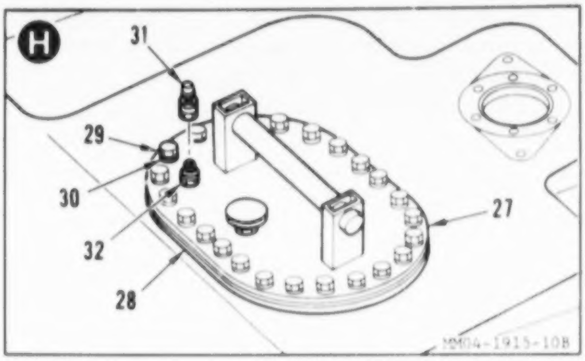
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4

11. **Install cover plate (27) on fuel cell access cover mounting pad (28).**

    a. Install 24 bolts (29) and washers (30).

    b. Install vacuum adapter (31) on quick-disconnect plug (32).



12. **Exhaust air from fuel cell (2).** Use vacuum cleaner (33).

    a. Connect vacuum cleaner hose (34) to vacuum adapter (31).

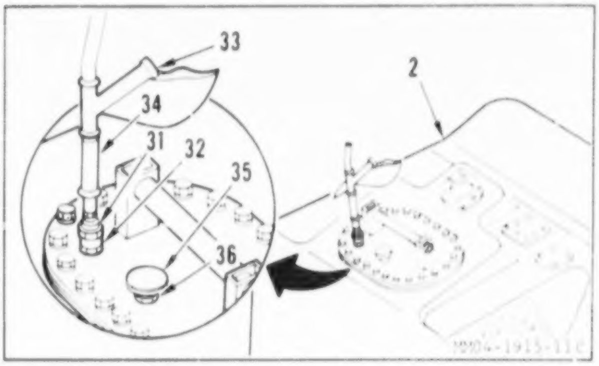
    b. Turn shutoff valve knob (35) counterclockwise to open valve (36).

    c. Start vacuum cleaner (33) to remove air from fuel cell (2).

    d. Turn shutoff valve knob (35) clockwise to close valve (36).

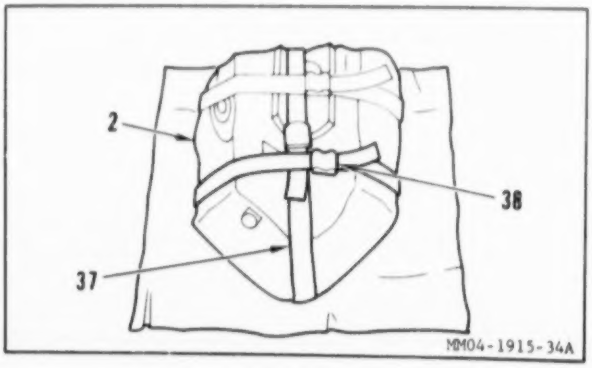
    e. Stop vacuum cleaner (33). Disconnect hose (34) from adapter (31).

    f. Remove vacuum adapter (31) from plug (32).



13. **Continue to collapse fuel cell (2).** Bind cell with straps (37) as required. Use straps from removal and installation kit.

14. **Position straps (37) so buckles (38) are accessible when fuel cell (2) is installed.**



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15. **Apply talcum powder to outer surfaces of fuel cell and to fuel cell cavity in helicopter.** Allow fuel cell to warm to room temperature. Use talcum powder (E133).

16. **Position fuel cell (2) in fuel cell cavity (1).** Ensure backing boards are properly positioned in fuel cavity and taped in position (para 10-3-6).

17. **Remove straps (37).**

18. **Inflate fuel cell (2).**

    a. Connect pressure fill (39) to plug (32).

    b. Turn shutoff valve knob (35) fully counterclockwise to open valve (36).

    c. Connect air hose to pressure fill assembly (39).

    d. Turn pressure fill regulator knob (40) clockwise until 2 psi is indicated on pressure regulator gage (41).

NOTE

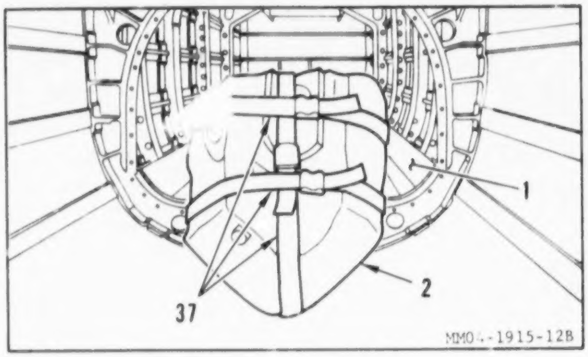
Pressure fill relief valve will begin venting pressure at approximately 0.5 psi.

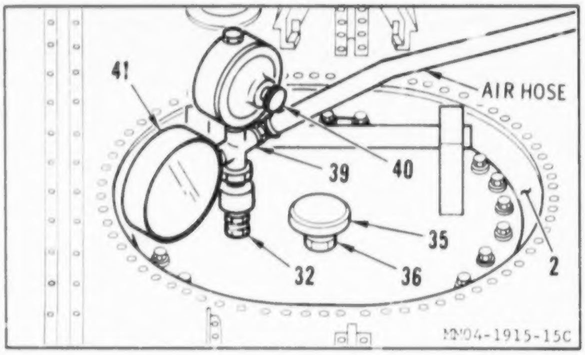
    e. Continue to apply pressure until fuel cell is fully inflated.

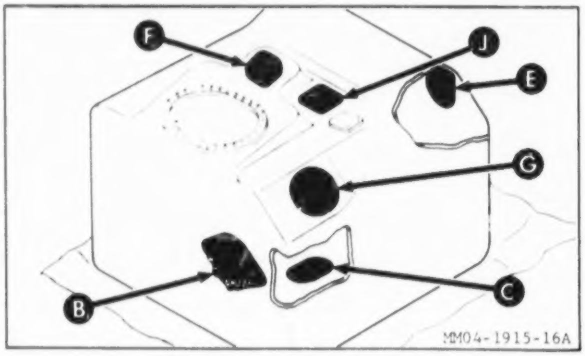
    f. Turn shutoff valve knob (35) fully clockwise, with air pressure still flowing, to keep fuel cell (2) inflated.

    g. Disconnect air hose from pressure fill (39).

    h. Disconnect pressure fill (39) from plug (32).







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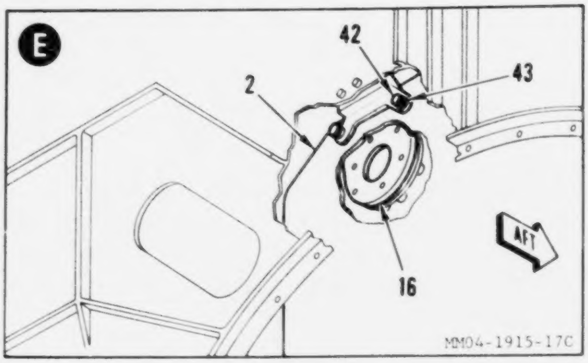
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4

19. **Connect fuel cell (2) to pad (16) from ammunition bay.** Install two bolts (42) and washers (43).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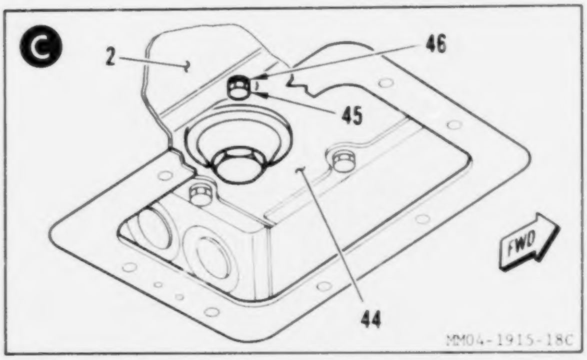
AFT
MM04-1915-17C

20. **Connect fuel cell (2) to drain valve mounting pad (44).** Install four bolts (45) and washers (46).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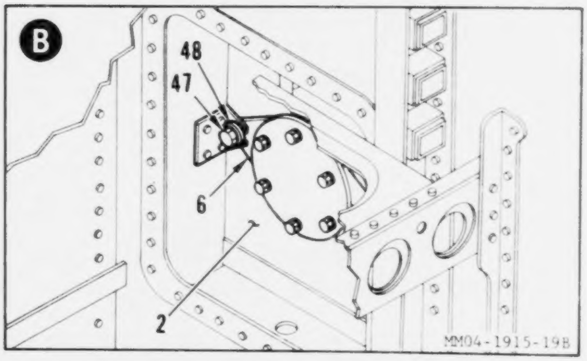
FWD
MM04-1915-18C

21. **Connect fuel cell (2) to mounting pad (6) from aft electronics bay.** Install two bolts (47) and washers (48).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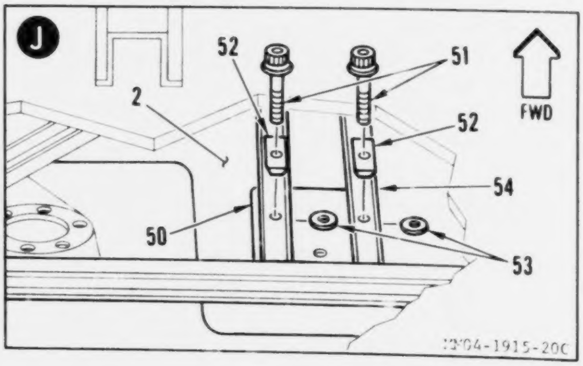
MM04-1915-19B

22. **Connect fuel cell (2) to mounting pad (50) from transmission deck.** Install two bolts (51) through two rectangular washers (52), and two flat washers (53) into pad (50). Position flat washers (53) between helicopter structure (54) and fuel cell (2).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MM04-1915-20C

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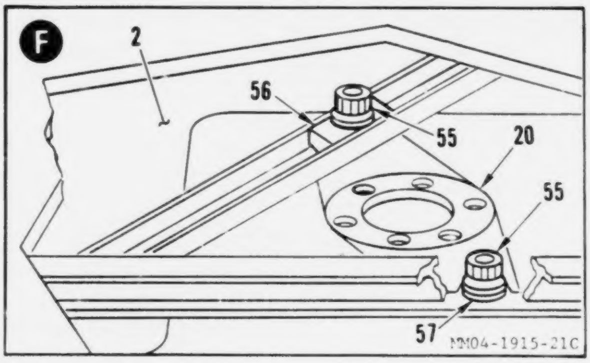
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4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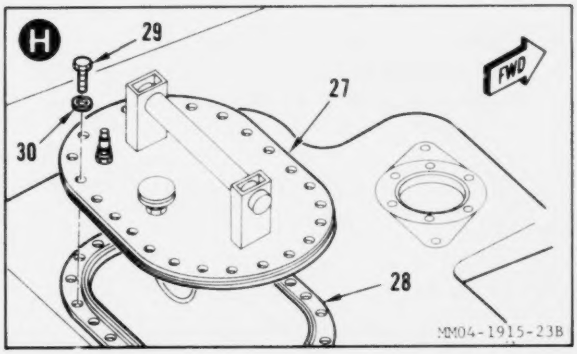
57
MM04-1915-21C

23. **Connect fuel cell (2) to vent tube adapter mounting pad (20) from transmission deck.**

    a. Install bolt (55) and rectangular washer (56).

    b. Install bolt (55) and flat washer (57).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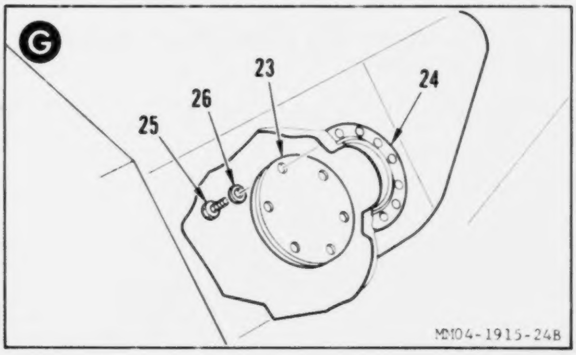
MM04-1915-23B

24. **Remove plate (27) from pad (28) on transmission deck.** Remove 24 bolts (29) and washers (30).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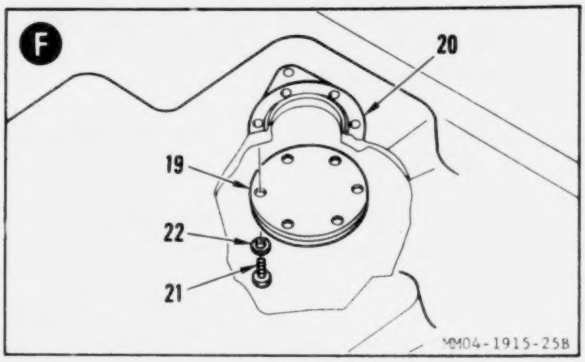
MM04-1915-24B

25. **Remove plate (23) from pad (24) inside fuel cell.** Remove six bolts (25) and washers (26).

GO TO NEXT PAGE

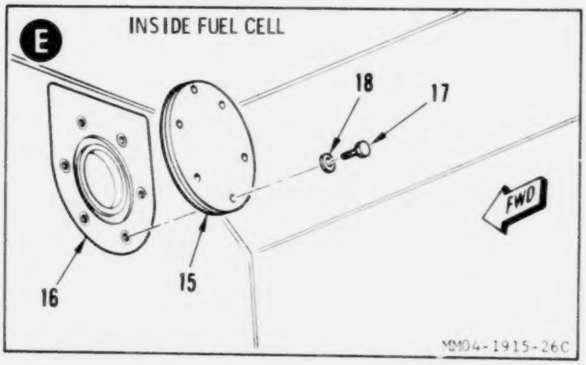
10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4

26. **Remove plate (19) from vent tube pad (20) inside fuel cell.** Remove six bolts (21) and washers (22).



MM04-1915-25B

27. **Remove cover plate (15) from refueling breakaway valve mounting pad (16) inside fuel cell.** Remove six bolts (17) and washers (18).


E
INSIDE FUEL CELL
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FWD
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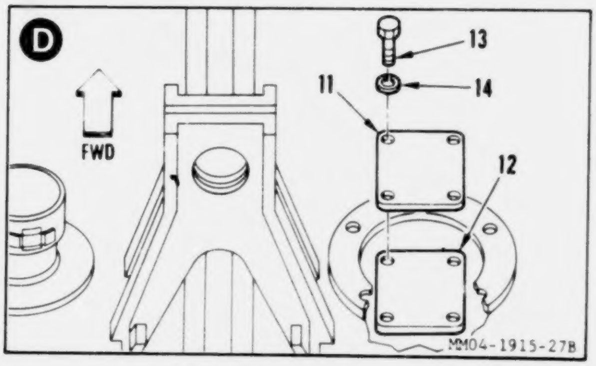
MM04-1915-26C

28. **Remove plate (11) from pad (12) on transmission deck.** Remove four bolts (13) and washers (14).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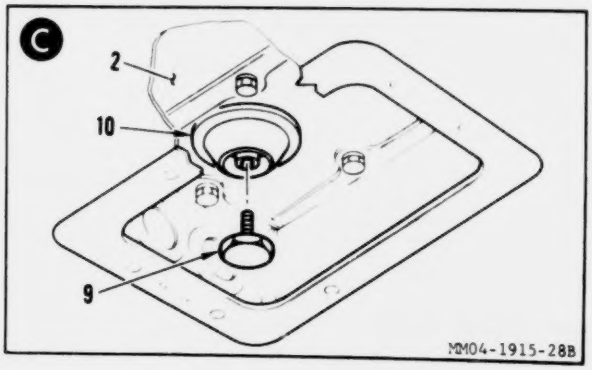
12

MM04-1915-27B

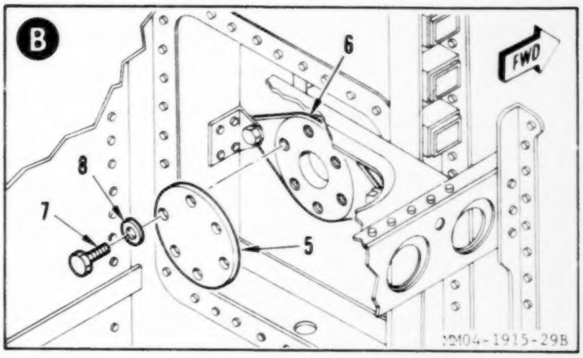
29. **Remove plug (9) from drain valve fitting (10).**



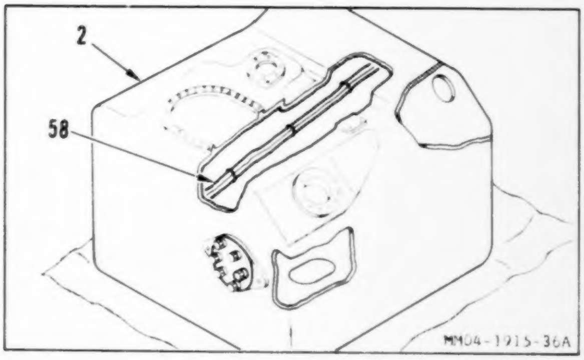
MM04-1915-28B

GO TO NEXT PAGE

30. **Remove cover plate (5) from boost pump mounting pad (6) in aft electronics bay.** Remove six bolts (7) and washers (8).

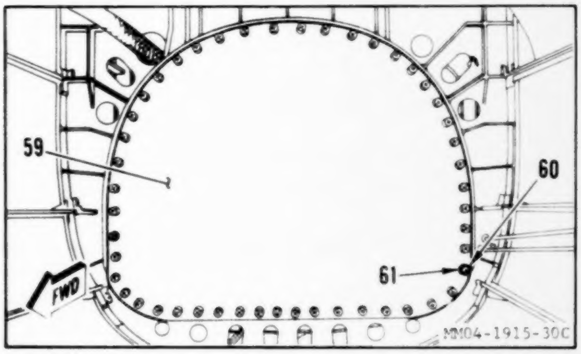

B
6
FWD
8
7
5
MM04-1915-29B

31. **Position wiring harness (58) in fuel cell (2).**


2
58
MM04-1915-36A

32. **Inspect (TI).**

33. **Install access panel (59) in ammunition bay.** Install 46 screws (60) through 46 washers (61).


59
60
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MM04-1915-30C

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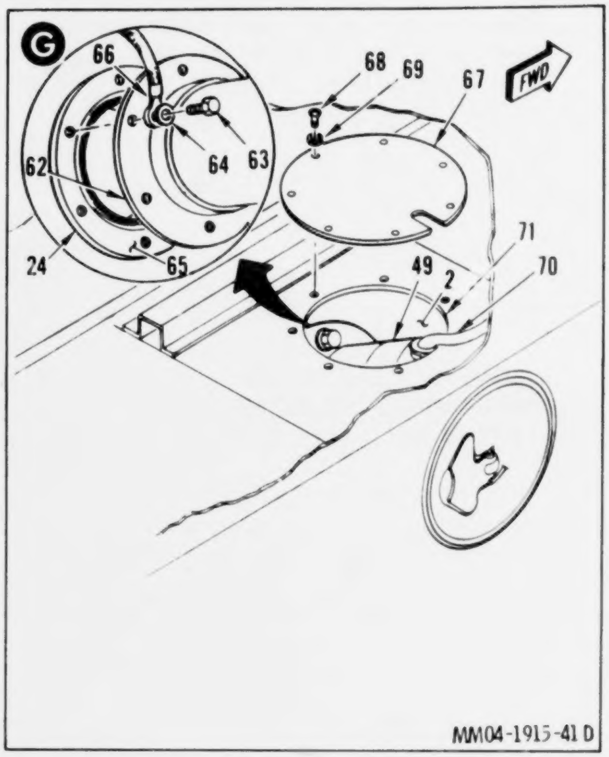


34. **Install filler neck (49) to fuel cell (2).**

    a. Lubricate new packing (62). Use petrolatum (E16).

    b. Install packing in filler neck mounting pad (24).

    c. Install five bolts (63) through five washers (64) and flange (64) into fuel cell (2).

    d. Install bolt (63) through washer (64), ground strap (66) and door (67) into flange (65).

35. **Inspect (TI).**

36. **Install access cover (67).**

    a. Slide grommet and wire bundle (70) into slot in cover (67).

    b. Position cover (67) over opening in deck (71).

    c. Lubricate seven new packings with retainer (69). Use petrolatum (E16).

    d. Install seven packings with retainer (69) and screws (68).

37. **Install aft fuel cell fuel/defuel check valve** (para 10-2-71).

38. **Install aft fuel cell pilot valve** (para 10-2-76).

39. **Install aft air vent/pressure relief valve** (para 10-2-80).

40. **Install aft fuel cell fuel shutoff valve** (para 10-2-78).

41. **Install aft fuel cell quantity transmitter** (para 10-2-78).

42. **Install aft four-way check valve** (para 10-2-75).

43. **Install aft pilot valve hose** (para 10-2-77).

44. **Install aft fuel cell refueling hose** (para 10-2-86).

GO TO NEXT PAGE

10-3-4. AFT FUEL CELL INSTALLATION (cont) 10-3-4

45. Install aft fuel cell fuel supply hose (para 10-2-86).

46. Install fuel boost pump canister (para 10-2-74).

47. Install aft refueling breakaway valve (para 10-2-81).

48. Install fuel boost pump inlet air hose (para 10-2-73).

49. Install fuel boost pump outlet hose (para 10-2-85).

50. Install crypto set (TM 11-1520-238-23).

51. Install fuel boost pump (para 10-2-72).

52. Install aft fuel cell fuel outlet breakaway valve (para 10-2-82).

53. Install aft fuel cell upper vent tube adapter (para 10-2-17).

54. Install aft sump drain valve (para 10-2-4).

55. Refuel aft fuel cell - gravity method (para 1-5-3).

56. Perform fuel quantity indication/transfer operational check (TM 55-1520-238-T).

57. Install ammunition storage magazine (TM 9-1090-208-23).

END OF TASK

10-3-5. FORWARD OR AFT FUEL CELL BACKING BOARD REMOVAL/INSTALLATION 10-3-5

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Materials/Parts:

(E41) Tape, Duct

Personnel Required:

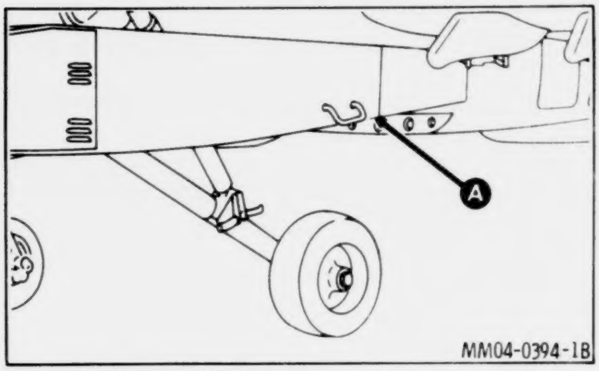
67R10 Attack Helicopter Repairer
66R30 Inspector/Supervisor

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-2-2	Fuel system safety precautions observed
1-5-8	Helicopter defueled (SPA) method
10-3-1	Fwd fuel cell removed or
10-3-4	Aft fuel cell removed

NOTE

This task is typical for forward or aft fuel cell backing boards.



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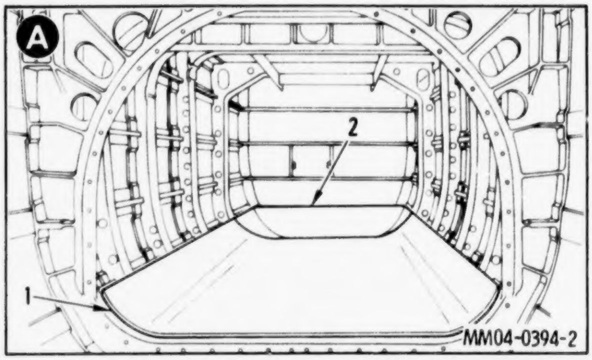
10-3-5. FORWARD OR AFT FUEL CELL BACKING BOARD REMOVAL/INSTALLATION (cont) 10-3-5



A. REMOVAL

1. **Remove fuel cell bottom backing board (1) through ammunition bay.**

   a. Remove duct tape from board (1).

   b. Lift board (1) from bottom of fuselage cavity.

   c. Remove board (1) through ammunition bay.

2. **Remove backing board section (2) through ammunition bay.**

   a. Remove duct tape from section (2) and fuselage.

   b. Lift section (2) and remove through ammunition bay.

B. CLEANING

Wipe fuselage fuel cavity with a clean rag.

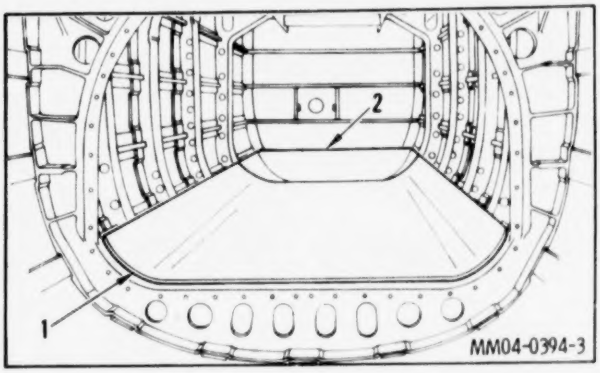
C. INSPECTION

Check inside of fuselage fuel cavity for foreign objects. None allowed.

GO TO NEXT PAGE

10-3-5. FORWARD OR AFT FUEL CELL BACKING BOARD REMOVAL/INSTALLATION (cont) 10-3-5

D. INSTALLATION



1. **Install section (2) in fuselage cavity.**
   a. Place section (2) in fuselage cavity.
   b. Secure section (2) with duct tape. Use tape (E41).
2. **Install board (1) in bottom of fuselage cavity.**
   a. Place board (1) in bottom of fuselage cavity.
   b. Secure board (1) with duct tape (E41).
3. **Inspect (IT).**
4. **Install forward fuel cell** (para 10-3-2) **or aft fuel cell** (para 10-3-4).

END OF TASK

10-3-6. FORWARD FUEL CELL RESTRAINT PAN REMOVAL/INSTALLATION 10-3-6

This task covers: A. REMOVAL B. CLEANING C. INSPECTION D. INSTALLATION

Tools:

Nomenclature	Part Number (NSN)
Tool Kit, Aircraft Mechanic's	5180-00-323-4692

Personnel Required:

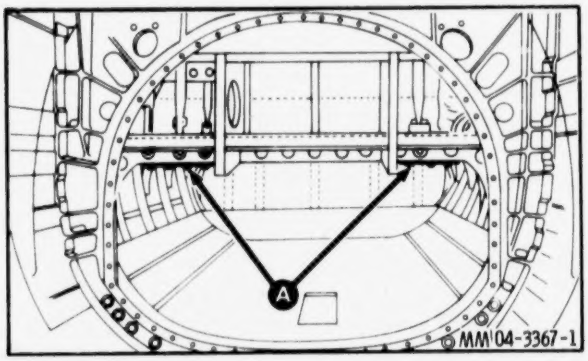
67R10	Attack Helicopter Repairer
66R30	Inspector/Supervisor

References:

TM 55-1500-204-25/1

Equipment Conditions:

Ref	Condition
1-7-2	Helicopter safed
10-3-6	Forward fuel cell backing board removed



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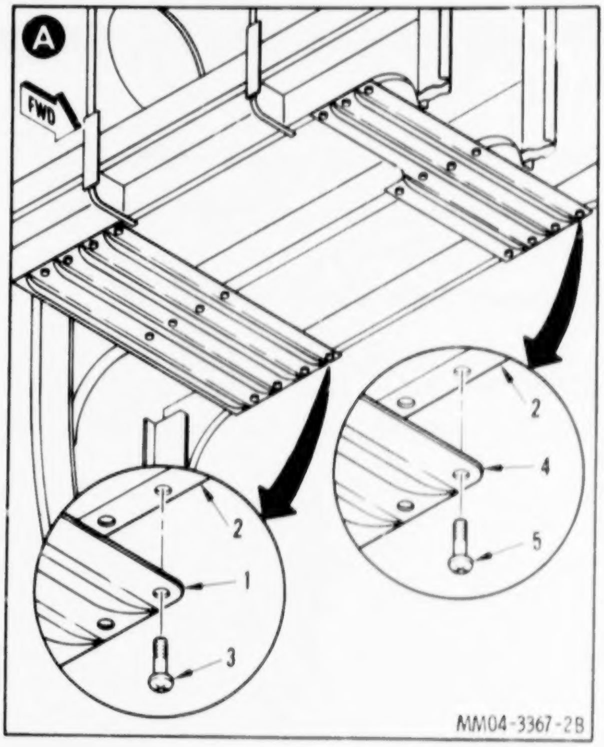
10-3-6. FORWARD FUEL CELL RESTRAINT PAN REMOVAL/INSTALLATION (cont) 10-3-6

A. REMOVAL

1. **Remove left restraint pan (1) from fuselage (2).** Remove 12 screws (3).
2. **Remove right restraint pan (4) from fuselage (2).** Remove 11 screws (5).



B. CLEANING

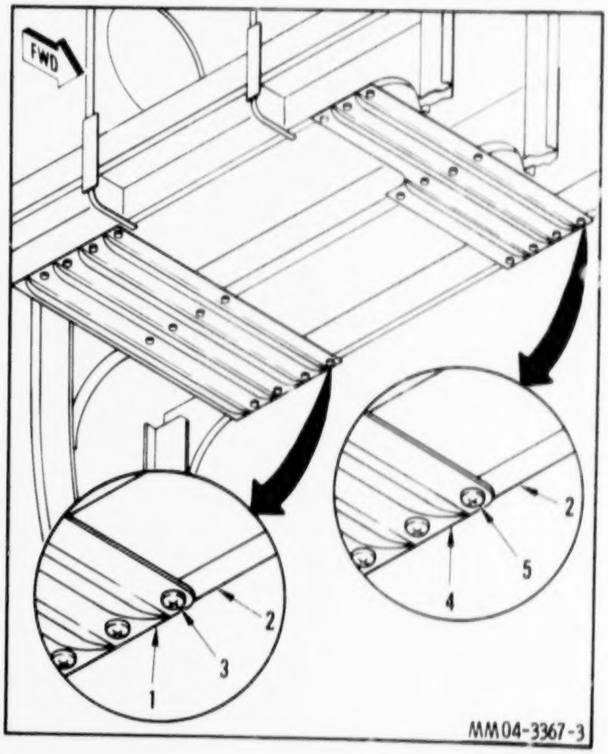
Wipe restraint pan and fuselage cavity with clean dry rags.

C. INSPECTION

1. **Check restraint pan for cracks** (para 2-2-8).
2. **Check nut plates for stripped threads** (para 2-3-68).
3. **Check mounting frame for cracks** (TM 55-1500-204-25/1).

D. INSTALLATION

1. **Install left restraint pan (1) on fuselage (2).** Install 12 screws (3).
2. **Install right restraint pan (4) on fuselage (2).** Install 11 screws (5).
3. **Inspect (TI).**
4. **Install forward fuel cell backing board** (para 10-3-5).
5. **Refuel helicopter (SPA) method** (para 1-5-5).



END OF TASK

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

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CO A, 3d ENGINEER BN
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TM 55-1520-238-23-6	7 June 1988	AVUM and AVIM Maintenance Manual, Army AH-64A Helicopter

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylinders. The engine on my set only has 4 Cylinders. Change the manual to show 4 Cylinders.
81		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the Other.
125	line 20			I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got What I ordered, so the NSN is Wrong. Please give me a good NSN

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C